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OF THE

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AT THE

SIXTY-FOURTH ANNUAL MEETING

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R. H. Hutchings, M. D., Superintendent.

Caroline S. Pease, M. D., Assistant Physician.

Elbert M. Somers, Jr., M. D., Assistant Physician.

Roy L. Leak, M. D., Assistant Physician.

Walter G. Ryon, M. D., Assistant Physician.

Charles M. Burdick, M. D., Assistant Physician.

Ethan A. Nevin, M. D., Assistant Physician.

MATTEAWAN STATE HOSPITAL, FISHKILL LANDING.

Robert B. Lamb, M. D., Superintendent.

WILLARD STATE HOSPITAL, WILLARD.

Robert M. Elliott, M. D., Superintendent.

Robert E. Doran, M. D., First Assistant Physician.

Chester Lee Carlisle, M. D., Assistant Physician.

Erving Holley, M. D., Assistant Physician.

William H. Montgomery, M. D., Assistant Physician.

ROCHESTER STATE HOSPITAL, ROCHESTER.

Eugene H. Howard, M. D., Superintendent.

Ezra B. Potter, M. D., First Assistant Physician.

NEW YORK—Continued.

Charles T. LaMoure, M. D., Second Assistant Physician.

Irving Lee Walker, M. D., Assistant Physician.

Eveline P. Ballintine, M. D., Assistant Physician.

BUFFALO STATE HOSPITAL, BUFFALO.

Arthur W. Hurd, M. D., Superintendent.

Henry P. Frost, M. D., First Assistant Physician.

Helene J. C. Kuhlman, M. D., Assistant Physician.

George G. Armstrong, M. D., Assistant Physician.

Joseph B. Betts, M. D., Assistant Physician.

MIDDLETOWN STATE HOMEOPATHIC HOSPITAL, MIDDLETOWN.

Maurice C. Ashley, M. D., Superintendent.

Robert C. Woodman, M. D., First Assistant Physician.

Roy E. Mitchell, M. D., Assistant Physician.

GOWANDA STATE HOMEOPATHIC HOSPITAL, GOWANDA.

Daniel H. Arthur, M. D., Superintendent.

DANNEMORA STATE HOSPITAL, DANNEMORA.

Charles H. North, M. D., Superintendent.

Theodore I. Townsend, M. D., First Assistant Physician.

KINGS COUNTY HOSPITAL, BROOKLYN.

John F. Fitzgerald, M. D., General Medical Superintendent.

William B. Moseley, M. D., Assistant Physician.

CRAIG COLONY FOR EPILEPTICS, SONYEA.

William T. Shanahan, M. D., First Assistant Physician.

James F. Munson, M. D., Assistant Physician and Pathologist.

PROVIDENCE RETREAT, BUFFALO.

William C. Krauss, M. D., Superintendent.

John J. Twohey, M. D., Physician-in-Charge.

BREEZESTONE TERRACE, WHITESTONE, L. I.

Daniel A. Harrison, M. D., Resident Physician.

GREENMONT-ON-HUDSON, OSSINING P. O.

Ralph L. Parsons, M. D.

LONG ISLAND HOME, AMITYVILLE, L. I.

O. J. Wilsey, M. D., Physician-in-Charge.

VERNON HOUSE, BRONXVILLE.

William D. Granger, M. D., Physician-in-Charge.

RIVER CREST SANITARIUM, ASTORIA, L. I.

William E. Dold, M. D., Physician-in-Charge.

J. Joseph Kindred, M. D.

NEW YORK—Continued.

THE KNOLLS, 261ST ST. AND BROADWAY, NEW YORK CITY.

Flavius Packer, M. D., Physician-in-Charge.

PATHOLOGICAL INSTITUTE, WARD'S ISLAND, NEW YORK CITY.

Adolf Meyer, M. D., Director.

THE PINES, AUBURN.

Frederick Sefton, M. D., Physician-in-Charge.

DR. McDONALD'S HOUSE, CENTRAL VALLEY.

Clarence J. Slocum, M. D., Resident Physician.

SANFORD HALL, FLUSHING.

W. Stuart Brown, M. D., Physician-in-Charge.

HILBOURNE FARMS, KATONAH.

Edward A. Sharp, M. D., Physician-in-Charge.

"GLENWOOD," DANSVILLE.

J. W. Wherry, M. D., Physician-in-Charge.

"RIVERVIEW," FISHKILL-ON-HUDSON.

James R. Bolton, M. D., Physician-in-Charge.

MARSHALL SANITARIUM, TROY.

Hiram Elliott, M. D., Superintendent.

BRIGHAM HALL, CANANDAIGUA.

D. R. Burrell, M. D., Resident Physician.

Charles E. Atwood, M. D., 14 East 60th St., New York.

Thomas E. Bamford, M. D., 239 Delaware St., Syracuse.

George F. M. Bond, M. D., 960 North Broadway, Yonkers.

Percy Bryant, M. D., 134 Hawthorne St., Brooklyn.

George B. Campbell, M. D., 78 Irving Place, New York.

L. Pierce Clark, M. D., 23 West 58th St., New York.

Fred B. Colby, M. D., Highland Falls.

Arthur C. Delacroix, M. D., Brooklyn.

Austin Flint, M. D., 118 East 19th St., New York.

Walter R. Gillette, M. D., 24 West 40th St., New York.

Menas S. Gregory, M. D., Resident Alienist, Bellevue Hospital.

Graeme M. Hammond, M. D., 60 West 56th St., New York.

Edward L. Hanes, M. D., 58 Clinton Ave., South, Rochester.

William Hirsch, M. D., 52 East 64th St., New York.

Smith Ely Jelliffe, M. D., 64 West 56th St. New York.

Theodore H. Kellogg, M. D., Riverdale, New York.

DeWitt C. MacClymont, M. D., Northport, N. Y.

Carlos F. MacDonald, M. D., 70 West 46th St., New York.

John I. McKelway, M. D., Binghamton.

J. M. Mosher, M. D., 170 Washington Ave., Albany.

B. Ross Nairn, M. D., 295 Baynes St., Buffalo.

NEW YORK—*Continued.*

- Frederick Peterson, M. D., 4 West 50th St., New York.
 Frank W. Robertson, M. D., 411 West End Ave., New York.
 William L. Russell, M. D., Poughkeepsie.
 B. Sachs, M. D., 21 E. 65th St., New York.
 H. Ernest Schmid, M. D., White Plains.
 William E. Sylvester, M. D., No. 1 Madison Ave., New York.
 Whitman V. White, M. D., Park Ave. Hotel, 33d St., New York.
 Sidney D. Wilgus, M. D., No. 1 Madison Ave., New York.
 George S. Youngling, M. D., 453 West 34th St., New York.

NORTH CAROLINA—STATE HOSPITAL, RALEIGH.

James McKee, M. D., Superintendent.

STATE HOSPITAL, MORGANTOWN.

No members.

STATE HOSPITAL, GOLDSBORO.

W. W. Faison, M. D., Superintendent.

Isaac M. Taylor, M. D., Morgantown.

NORTH DAKOTA—STATE HOSPITAL FOR THE INSANE OF NORTH DAKOTA,
JAMESTOWN.

O

OHIO—LONGVIEW HOSPITAL, CINCINNATI.

F. W. Harmon, M. D., Superintendent.

DAYTON STATE HOSPITAL, DAYTON.

Arthur F. Shepherd, M. D., Superintendent.

COLUMBUS STATE HOSPITAL, COLUMBUS.

George Stockton, M. D., Superintendent.

G. H. Williams, M. D., Assistant Physician.

Samuel F. Orton, M. D., Assistant Physician.

ATHENS STATE HOSPITAL, ATHENS.

No members.

CLEVELAND STATE HOSPITAL, CLEVELAND.

Charles H. Clark, M. D., Superintendent.

TOLEDO STATE HOSPITAL, TOLEDO.

No members.

MASSILLON STATE HOSPITAL, MASSILLON.

H. C. Eyman, M. D., Superintendent.

Edson C. Brown, M. D., Assistant Physician.

John D. O'Brien, Assistant Physician.

OHIO—*Continued.*

GALLOPOLIS HOSPITAL FOR EPILEPTICS, GALLOPOLIS.

William Pritchard, M. D., Superintendent.

OXFORD RETREAT, OXFORD.

George F. Cook, M. D., Superintendent.

R. Harvey Cook, M. D., Assistant Physician.

CINCINNATI SANITARIUM, COLLEGE HILL.

Berthold A. Williams, M. D., Senior Resident Physician.

Charles B. Rogers, M. D.

George T. Harding, M. D., 78 South 3d St., Columbus.

A. B. Howard, M. D., Cleveland.

F. W. Langdon, M. D., 5 Garfield Place, Cincinnati.

J. M. Lewis, M. D., Cleveland.

J. M. Ratliff, M. D., Dayton.

William Searl, M. D., Fair Oaks, Cuyahoga Falls.

H. A. Tobey, M. D., Toledo.

OREGON—OREGON STATE INSANE ASYLUM, SALEM.

Henry Waldo Coe, M. D., Medical Director Crystal Springs,
Portland.

Robert L. Gillespie, M. D., Medical Director Crystal Springs,
Portland.

P**PENNSYLVANIA**—PENNSYLVANIA HOSPITAL FOR THE INSANE, PHILADELPHIA.

John B. Chapin, M. D., Superintendent.

A. R. Moulton, M. D., Senior Assistant Physician.

Henry B. Nunemaker, M. D., Assistant Physician.

FRIENDS' ASYLUM FOR THE INSANE, FRANKFORD, PHILADELPHIA.

Robert H. Chase, M. D., Superintendent.

Isabel A. Bradley, M. D., Assistant Physician.

PHILADELPHIA HOSPITAL, INSANE DEPARTMENT, PHILADELPHIA.

W. W. Hawke, M. D., Chief Resident Physician.

STATE HOSPITAL FOR THE INSANE, NORRISTOWN.

Mary Moore Wolfe, M. D., Resident Physician Department for
Women.

Mary Christiancy, M. D., Assistant Physician.

Jeanette H. Sherman, M. D., Assistant Physician.

William W. Richardson, M. D., Resident Physician, Department
for Men.

Clyde R. McKinnis, M. D., Assistant Physician.

PENNSYLVANIA—*Continued.*

PENNSYLVANIA STATE HOSPITAL, HARRISBURG.

H. L. Orth, M. D., Superintendent.

STATE HOSPITAL FOR THE INSANE, WARREN.

Morris S. Guth, M. D., Superintendent.

STATE HOSPITAL FOR THE INSANE, DANVILLE.

Hugh B. Meredith, M. D., Superintendent.

THE DIXMONT HOSPITAL FOR THE INSANE, DIXMONT.

Henry A. Hutchinson, M. D., Superintendent.

PENNSYLVANIA EPILEPTIC HOSPITAL AND COLONY FARM, OAKBOURNE.

No members.

PENNSYLVANIA TRAINING SCHOOL FOR FEEBLE-MINDED, ELWYN.

No members.

ASYLUM FOR THE CHRONIC INSANE, WERNERSVILLE.

S S. Hill, M. D., Superintendent.

EASTERN PENNSYLVANIA STATE INSTITUTION FOR THE FEEBLE-MINDED
AND EPILEPTIC, SPRING CITY.

Henry M. Weeks, M. D., Superintendent.

HOSPITAL FOR THE INSANE OF LUZERNE COUNTY, RETREAT.

Charles B. Mayberry, M. D., Superintendent.

Harris May Carey, M. D., Assistant Physician.

CHESTER COUNTY HOSPITAL FOR INSANE, EMBREEVILLE.

Jane Rogers Baker, M. D., Superintendent.

THE EASTON SANITARIUM.

C. Spencer Kinney, M. D., Proprietor.

Edward A. Everett, M. D., Assistant Physician.

Charles W. Burr, M. D., University of Pennsylvania, Philadelphia.

Edward E. Mayer, M. D., Pittsburg.

Seymour DeWitt Ludlum, M. D., Merion, Pa.

Charles K. Mills, 1909 Chestnut St., Philadelphia.

J. Nicholas Mitchell, M. D., 1505 Spruce St., Philadelphia.

Arno C. Voigt, M. D., Hawley.

Grace E. White, M. D., Ardmore.

W. E. Wright, M. D., Harrisburg, Pa.

PUERTO RICO—INSANE ASYLUM, SAN JUAN.

No members.

R

RHODE ISLAND—BUTLER HOSPITAL, PROVIDENCE.

G. Alder Blumer, M. D., Superintendent.

Henry C. Hall, M. D., Assistant Physician.

William McDonald, M. D., Assistant Physician.

STATE HOSPITAL FOR THE INSANE, HOWARD.

Arthur H. Harrington, M. D., Superintendent.

RHODE ISLAND STATE SANATORIUM, WALLUM LAKE.

H. L. Barnes, M. D., Superintendent.

S

SOUTH CAROLINA—STATE HOSPITAL FOR THE INSANE, COLUMBIA.

J. W. Babcock, M. D., Superintendent.

J. L. Thompson, M. D., Assistant Physician.

SOUTH DAKOTA—SOUTH DAKOTA HOSPITAL FOR THE INSANE, YANKTON.

L. C. Mead, M. D., Superintendent.

George Sheldon Adams, M. D., Assistant Superintendent.

T

TENNESSEE—CENTRAL HOSPITAL FOR THE INSANE, NASHVILLE.

John A. Beauchamp, M. D., Superintendent.

Albert E. Douglas, M. D., Assistant Physician.

EASTERN HOSPITAL FOR THE INSANE, KNOXVILLE.

Michael Campbell, M. D., Superintendent.

WESTERN HOSPITAL FOR THE INSANE, BOLIVAR.

No members.

TEXAS—HOSPITAL FOR THE INSANE, AUSTIN.

B. M. Worsham, M. D., Superintendent.

NORTH TEXAS HOSPITAL FOR THE INSANE, TERRELL.

No members.

SOUTHWESTERN INSANE ASYLUM, SAN ANTONIO.

No members.

STATE EPILEPTIC COLONY, ABILENE.

John Preston, M. D., Superintendent.

Marvin L. Graves, M. D., Galveston.

T. O. Maxwell, M. D., Box 62, Austin.

G. H. Moody, M. D., San Antonio.

John S. Turner, Fort Worth.

U

UTAH—UTAH STATE MENTAL HOSPITAL, PROVO CITY.
Daniel H. Calder, M. D., Superintendent.

V

VERMONT—BRATTLEBORO RETREAT, BRATTLEBORO.
Shailer E. Lawton, M. D., Superintendent.

VERMONT STATE HOSPITAL FOR THE INSANE, WATERBURY.
Clayton G. Andrews, M. D., Burlington.

VIRGINIA—EASTERN STATE HOSPITAL, WILLIAMSBURG.
Oliver Brunk, Medical Superintendent.

CENTRAL STATE HOSPITAL, PETERSBURG.
William F. Drewry, M. D., Superintendent.

WESTERN STATE HOSPITAL, STAUNTON.
J. H. Garlick, M. D., Assistant Physician.

SOUTHWESTERN STATE HOSPITAL, MARION.
A. S. Priddy, M. D., Superintendent.

L. S. Foster, M. D., Protestant Hospital, Norfolk.
E. H. Pomeroy, M. D., Black Mountain, Lee County.

W

WASHINGTON—WESTERN WASHINGTON HOSPITAL FOR THE INSANE, FORT
STEILACOOM.
No members.

EASTERN WASHINGTON HOSPITAL FOR THE INSANE, MEDICAL LAKE.
No members.

WEST VIRGINIA—WEST VIRGINIA HOSPITAL FOR THE INSANE AT WESTON.
No members.

SECOND HOSPITAL FOR THE INSANE AT SPENCER.
A. J. Lyons, M. D., Superintendent.

WEST VIRGINIA ASYLUM AT HUNTINGTON, HUNTINGTON.
L. V. Guthrie, M. D., Superintendent.

A. H. Kunst, M. D., Parkersburg.

WISCONSIN—WISCONSIN STATE HOSPITAL FOR THE INSANE, MENDOTA.
Charles Gorst, M. D., Superintendent.

NORTHERN HOSPITAL FOR THE INSANE, WINNEBAGO.
W. A. Gordon, M. D., Superintendent.

WISCONSIN—*Continued.*

MILWAUKEE ASYLUM FOR THE CHRONIC INSANE, WAUWATOSA.

William F. Beutler, M. D., Superintendent.

MILWAUKEE HOSPITAL FOR THE INSANE, WAUWATOSA.

M. J. White, M. D., Superintendent.

MILWAUKEE SANITARIUM, WAUWATOSA.

Richard Dewey, M. D., Physician-in-Charge.

William F. Becker, M. D., 604 Goldsmith Bldg., Milwaukee.

E. L. Bullard, M. D., 402 Camp Bldg., Milwaukee.

Byron M. Caples, M. D., Waukesha Springs.

John B. Edwards, M. D., Mauston.

William G. Stearns, M. D., Lake Geneva.

Uranus O. B. Wingate, M. D., Milwaukee.

WYOMING—STATE HOSPITAL FOR THE INSANE, EVANSTON.

Charles H. Solier, M. D., Superintendent.

BRITISH AMERICA.

BRITISH COLUMBIA—PUBLIC HOSPITAL FOR INSANE, NEW WESTMINSTER.

Charles Edward Doherty, M. D., Superintendent.

MANITOBA—SELKIRK ASYLUM, SELKIRK.

David Young, M. D., Superintendent.

NEW BRUNSWICK—THE PROVINCIAL HOSPITAL, ST. JOHN.

James V. Anglin, M. D., Superintendent.

NEWFOUNDLAND—ASYLUM FOR THE INSANE, ST. JOHN'S.

NOVA SCOTIA—NOVA SCOTIA HOSPITAL, HALIFAX.

W. H. Hattie, M. D., Superintendent.

Frederick E. Lawlor, M. D., Assistant Physician.

George L. Sinclair, M. D., Provincial Inspector of Hospitals and Asylums, 25 Tobin St., Halifax, N. S.

ONTARIO—HOSPITAL FOR THE INSANE, TORONTO.

Charles K. Clarke, M. D., Superintendent.

John Gerald Fitzgerald, M. D., Clinical Director.

ASYLUM FOR THE INSANE, LONDON.

No members.

ROCKWOOD HOSPITAL FOR THE INSANE, KINGSTON.

Edward Ryan, M. D., Superintendent.

HOSPITAL FOR THE INSANE, HAMILTON.

W. M. English, M. D., Medical Superintendent.

ASYLUM FOR THE INSANE, MIMICO, TORONTO.
Nelson H. Beemer, M. D., Superintendent.

HOSPITAL FOR THE INSANE, BROCKVILLE.
Thomas J. Moher, M. D., Superintendent.

ASYLUM FOR THE INSANE, COBOURG.
Charles E. Hickey, M. D., Superintendent.

HOMEWOOD SANITARIUM, GUELPH.
Alfred T. Hobbs, M. D., Superintendent.

ASYLUM FOR THE INSANE, PENETANGUISHENE.
G. A. MacCallum, Superintendent.

Eugene C. McNicholl, Cobourg.
Donald Campbell Meyers, M. D., Deer Park, Toronto.
James Russell, M. D., Hamilton.

PRINCE EDWARD ISLAND—HOSPITAL FOR INSANE, CHARLOTTETOWN.
V. L. Goodwill, M. D., Medical Superintendent.

QUEBEC—PROTESTANT HOSPITAL FOR THE INSANE, MONTREAL.
T. J. W. Burgess, M. D., Superintendent.
Carlyle A. Porteous, M. D., Assistant Superintendent.
Andrew Macphail, M. D., Consulting Pathologist.

SAINT JEAN DE DIEU HOSPITAL FOR THE INSANE, GABELIN.
George Villeneuve, M. D., Superintendent.

BEAUFORT ASYLUM FOR THE INSANE, QUEBEC CO.
M. D. Brochu, M. D., Superintendent.

E. Philippe Chagnon, M. D., Montreal.
David Alexander Shirres, M. D., 670 Sherbrooke St., West,
Montreal.

AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION.

CONSTITUTION.

ARTICLE I.

This organization shall be known as the AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION, this name being adopted in 1892 by "The Association of Medical Superintendents of American Institutions for the Insane," founded in 1844.

ARTICLE II.

The object of this Association shall be the study of all subjects pertaining to mental disease, including the care, treatment, and promotion of the best interests of the insane.

ARTICLE III.

There shall be four classes of members: (1) Active members, who shall be physicians, resident in the United States and British America, especially interested in the treatment of insanity; (2) Associate members; (3) Honorary members; and (4) Corresponding members.

ARTICLE IV.

The officers of the Association shall consist of a President, Vice-President, Secretary—who shall also be the Treasurer—three Auditors, and twelve other members of the Association to be called Councilors; all of these officers together shall constitute a body which shall be known as the Council.

NOTE.—The Association of Medical Superintendents of American Institutions for the Insane was founded in 1844 by the original thirteen members. In 1891, when its membership had increased to more than two hundred, it was proposed, at the annual meeting of that year in Washington, to form a better organization of the Association—its work having previously been done under the somewhat unstable rules of custom and a few resolutions scattered through its records. The proposition was agreed to, and at the annual meeting in Washington, in 1892 there was unanimously adopted the following Constitution and By-Laws, with the change of name to the AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION.

ARTICLE V.

The Active members of the Association shall include all past and present medical superintendents named in the official list published for 1892 of members of "The Association of Medical Superintendents of American Institutions for the Insane"; the Honorary members shall include those so designated in that list; the Associate members shall include all the assistant physicians named in the same list; it being provided that said list shall be corrected by the Council, as may be necessary to carry out the intention of the Constitution as to the continuance of existing membership.

Every candidate for admission to the Association hereafter as an Active member shall be proposed to the Council, in writing, in an application addressed to the President, at any annual meeting preceding the one at which the election is held. Honorary, Associate, or Corresponding members shall be proposed to the Council, in writing, in an application addressed to the President, at least two months prior to the meeting of the Association. Every application of whatever class must include a statement of the candidate's name and residence, professional qualifications, and any appointments then or formerly held, and certifying that he is a fit and proper person for membership. In the case of a candidate for Active or Associate membership, the application shall be signed by three Active members of the Association; and by six Active members for the proposal of an Honorary or Corresponding member. The names of all candidates approved by a majority vote of members of the Council present at its annual meeting shall be presented on a written or printed ballot to the Association at its concurrent annual meeting, at least one session previous to that at which the election is made, which shall be by ballot at a regular session, and require a majority vote of the members present. Physicians who, by their professional work or published writings, have shown a special interest in the care and welfare of the insane, are eligible to Active membership. The only persons eligible for Associate membership are regularly appointed assistant physicians of institutions for the insane that are regarded to be properly such by the Council; and they are eligible for such membership only during the time they are hold-

ing such appointments. After holding such an appointment three years, an Associate member may become an Active member by making application, in writing, to the Council, and upon its approval, being elected in the manner heretofore prescribed.

ARTICLE VI.

Physicians and others who have distinguished themselves by their attainments in branches of science connected with insanity, or who have rendered signal service in philanthropic efforts to promote the interests of the insane, shall be eligible for Honorary membership.

Physicians not residents in the United States and British America, who are actively engaged in the treatment of insanity, may be elected Corresponding members.

Active members only shall be entitled to a vote at any meeting, or be eligible to any office. Honorary and Corresponding members shall be exempt from all payments to the Association.

ARTICLE VII.

Any member of the Association may withdraw from it on signifying his desire to do so in writing to the Secretary: *Provided*, That he shall have paid all his dues to the Association. Any member who shall fail for three successive years to pay his dues after special notice by the Treasurer shall be regarded as having resigned his membership, unless such dues shall have been remitted by the Council for good and sufficient reasons.

And member who shall be declared unfit for membership by a two-thirds vote of the members of the Council present at an annual meeting of that body shall have his name presented by it for the action of the Association from which he shall be dismissed if it be so voted by two-thirds of the members present at its annual meeting.

ARTICLE VIII.

The Officers and Councilors shall be elected at each annual meeting. They shall be nominated to the Association on the second day of the annual meeting in the order of business of the first session of that day, by a committee appointed for that purpose by the President; and the election shall take place immedi-

ately. The election shall be made as the meeting may determine, and the person who shall have received the highest number of votes shall be declared elected to the office for which he has been nominated.

The President, Vice-President, the Secretary and Treasurer, and Auditors shall hold office for one year or until the beginning of the term for which their successors are elected. One Auditor shall be elected for one year, one for two years, and one for three years. The Secretary and Treasurer and one Auditor are eligible for re-election. At the first election of Councilors, four members shall be elected for one year, four for two years, and four for three years; and thereafter four members shall be elected each year to hold office three years, or until their successors are elected. The President, Vice-President, one Auditor, and the four retiring Councilors are ineligible for re-election to their respective offices for one year immediately following their retirement. All the Officers and Councilors shall enter upon their duties immediately after their election, excepting the President and Vice-President. When any vacancies occur in any of the offices of the Association, they shall be filled by the Council until the next annual meeting.

A quorum of the Council shall be formed by six members; and of the Association by twenty Active members.

ARTICLE IX.

The President and Vice-President for the year shall enter on their duties at the close of the business of the annual meeting at which they are elected. The President shall prepare an inaugural address to be delivered at the opening session of the meeting. He shall preside at all the annual or special meetings of the Association or Council, or in his absence at any time, the Vice-President shall act in his place.

The Secretary and Treasurer shall keep the records of the Association and perform all the duties usually pertaining to that office, and such other duties as may be prescribed for him by the Council; and under the same authority he shall receive and disburse and duly account for all sums of money belonging to the Association. He shall keep accurate accounts and vouchers of all his receipts and payments on behalf of the Association, and of

all invested funds, with the income and disposition thereof, that may be placed in his keeping, and shall submit these accounts, with a financial report for the preceding year, to the Council at its annual meeting. Each annual statement shall be examined by the Auditors, who shall prepare and present at each annual meeting of the Association a report showing its financial condition. The Council shall have charge of any funds in the possession of the Association, and which shall be invested under its direction and control. The Council shall keep a careful record of its proceedings, and make an annual report to the Association of matters of general interest. The Council shall also print annually the proceedings of the meetings of the Association and the reports of the Treasurer and Auditors.

The Council is empowered to manage all the affairs of the Association, subject to the Constitution and By-Laws; to appoint committees from the membership of the Association, and spend money out of its surplus funds for special scientific investigations in matters pertaining to the objects of the Association, to publish reports of such scientific investigations; to apply the income of special funds, at its discretion, to the purposes for which they were intended. The Council may also engage in the regular publication of reports, papers, transactions, and other matters, in annual volume, or in a journal, in such manner and at such times as the Council may determine, with the approval of the Association.

ARTICLE X.

Amendments to the Constitution and By-Laws shall be taken up for consideration at the first session of the second day of any annual meeting, and may be made by a two-thirds vote of all the members present: *Provided*, That notice of such proposed amendments be given in writing at the annual meeting next preceding. It shall be the duty of the Secretary to send to all the members a copy of any proposed amendment at least three months previous to the meeting when the action is to be taken.

BY-LAWS.

ARTICLE I.

The meetings of the Association shall be held annually. The time and place of each meeting shall be named by the Council, and reported to the Association for its action at the preceding meeting. Each annual meeting shall be called by printed announcements sent to each member at least three months previous to the meeting.

The Council shall hold an annual meeting concurrent with the annual meeting of the Association; and the Council shall hold as many sessions and at such times as the business of the Association may require.

Special meetings of the Council may be called by the order of the Council. The President shall have authority at any time, at his own discretion, to instruct the Secretary to call a special meeting of the Council; and he shall be required to do so upon a request signed by six members of the Council. Such special meetings shall be called by giving at least four weeks' written notice.

ARTICLE II.

Each and every Active and Associate member shall pay an annual tax to the Treasurer, the amount to be fixed annually by the Council, not to exceed five dollars for an Active member, or two dollars for an Associate member.

ARTICLE III.

The order of business of each annual meeting of the Association shall be determined by the Council, and shall be printed for the use of the Association at its meeting. The Council shall also make all arrangements for the meetings of the Association, appointing such auxiliary committees from its own body, or from other members of the Association, and making such other provisions as shall be requisite, at its discretion.

NOTE.

The accompanying volume, containing the proceedings, papers, and discussions of the American Medico-Psychological Association at its Sixty-fourth Annual Meeting, is printed by the Council with the approval of the Association.

CHARLES W. PILGRIM,
Secretary.

POUGHKEEPSIE, N. Y.,
October 1, 1908.

AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION.

PROCEEDINGS OF THE SIXTY-FOURTH ANNUAL MEETING.

CINCINNATI, OHIO, TUESDAY, MAY 12, 1908.—FIRST SESSION.

The Association convened at 10 a. m. in the Convention Hall of the Hotel Sinton, Cincinnati, Ohio, and was called to order by the President, Dr. Charles P. Bancroft, of Concord, New Hampshire.

THE PRESIDENT.—*Ladies and Gentlemen, members of the American Medico-Psychological Association:* I have the honor to call to order the Sixty-Fourth Annual Meeting of this Association, and I have the pleasure of introducing, in the absence of the Chairman of the Committee of Arrangements, Dr. Harmon, who is too ill to be with us, Dr. Langdon of that Committee, who will speak to you.

DR. LANGDON.—*Ladies and Gentlemen:* We have with us this morning a gentleman who was a good farmer in his youth; who has served as an officer with distinction in the Civil War; who has ably represented this country abroad in the diplomatic service; who is to-day one of the best known journalists in the West, if not in the United States—but more than all these, he is in all probability the best-loved mayor that Cincinnati has ever had. (Applause.) It affords me much pleasure to introduce to you Colonel Leopold Markbreit, Mayor of Cincinnati. (Applause.)

MAYOR MARKBREIT.—*Mr. Chairman:* I want to thank you for your kind words about me. *Ladies and Gentlemen:* The perquisites of my office, and the only ones I have, are delightful occasions like this one. It does my soul, it does my heart good to look about me here at this audience and see the intellectual faces before me. I welcome you most heartily to our dear old town of Cincinnati. I hope you will enjoy your visit here. I hope that when you leave us, it will be with regret, and with a desire in your hearts to come back to us some time. I assure you you will all be welcome, either as a convention, or as individuals.

While here, I beg of you that you will look around you, go out to our beautiful hills, east, west, north; go over the Belle Riviere—the beautiful Ohio—go up to the Kentucky highlands, go to Fort Thomas and get a view up and down the river—you will not find a more beautiful one in all God's

earth. Go to our Art Museum; go to our University, and above all, gentlemen, do not fail to go to the new waterworks. There is nothing better on the face of the earth. Water as clear as crystal and absolutely pure—all out of the old muddy Ohio River. Our works may be smaller than some others, but there is nothing better. Everything is the very best—the most recent views have been put in use there.

Now, gentlemen, I am not going to detain you by a long speech. I assure you I am delighted to have you here. I hope you will think of this meeting pleasantly always. I hope you will have a good time while you are with us. I thank you for your attention. (Applause.)

THE PRESIDENT.—The cordial and hearty greetings extended to us by His Honor, the Mayor, will, I am sure, be appreciated by every member of our Association. It is several years since we met in this city, but the recollections of that previous visit, and the city's cordial hospitality, are a pleasant memory to many who are here.

The duties of the municipal magistrate have much in common with the life work of the members of this Association. The care of those whose minds have broken down under the stress of modern life, and particularly such a life as is lived in large cities such as that over which you, Mr. Mayor, have the honor to preside, is a matter of interest not only to the psychiatrist, but to the municipal magistrate. The problem of municipal government has become something more, I believe, than a mere political problem in these latter days. (Applause.) It involves questions of great sociological interest. How to preserve the mental health of the community in the midst of the complex social conditions that exist in a large city, is a matter of great interest.

We meet, therefore, on common ground. You, sir, as the representative of a large city, are interested, I am sure, in the questions that we shall discuss at these meetings, and, therefore, it is a great pleasure to us to receive your cordial welcome and to feel that through you, your city extends to us the welcoming hand. Allow me to thank you again sir. (Applause.)

MAYOR MARKBREIT.—The welcome is extended most cordially, I do assure you. (Applause.)

DR. LANGDON.—*Mr. President and members of the Association:* Your Committee of Arrangements has been very fortunate during its labors in preparation for this meeting, in having the cordial co-operation and assistance of a gentleman without whom social life in Cincinnati would be extremely dull indeed, if indeed it managed to exist at all. It affords me great pleasure to introduce to you Colonel William B. Melish, President of the Cincinnati League. (Applause.)

COL. MELISH.—*Mr. President, Ladies and Gentlemen:* When the Cincinnati Convention League, composed of business men and business organizations of this city, learned that the American Medico-Psychological Association had accepted the invitation to hold its meeting in our city, it was

with a great deal of pleasure that we consulted with those very capable and indefatigable members of your Association who reside in our city, Drs. Langdon and Harmon. As the executive heads of the local hospitals for the insane, we have usually avoided them, but when we learned that they were to be backed up by all of you gentlemen in the same line of the professional work we thought we would do well to get acquainted with the characteristics of the members of this Association and prepare ourselves, in time, for any examination you might demand.

It is in behalf of the Cincinnati Convention League and the business men of Cincinnati that I am to speak a word of welcome. The Mayor represents all of the citizens of Cincinnati, some with money and some without. I represent the citizens that have money (laughter), and I can assure you that if any of you "go broke" while you are here, all you have to do is to apply to me as the President of the Cincinnati League and I will take your draft. I may go to the telegraph office and ascertain if it is good (Applause), but I will see that you get out of town safely after the hospitality we hope to show to you.

The motto of our League is "Not commercialism, but hospitality"; to make those who come within our gates happy while they are here, and to send them away regretful that they cannot live here all the time. The League has resolved itself on this occasion into a committee of one. We have organized a special citizen's entertainment committee and it is composed largely of members of the medical profession, a few lawyers, and a few of our business men to keep up the quality of the committee. We extend to you a special invitation to attend the reception to be given under the auspices of this committee this evening in this hotel. At 8 o'clock the members of this Association and their ladies are invited to meet in the large convention hall at the opposite end of this floor of the hotel, and there with music and an address we will endeavor to entertain you. The address this evening, as you have noticed on your program, is to be made by the Honorable Judson Harmon, the elder brother of Dr. Frank W. Harmon, whose illness keeps him from being with you to-day. Judge Harmon has been recently nominated by the Democracy of the State of Ohio as their candidate for governor, and he is, as you are doubtless aware, an ex-attorney general of the United States, and it is as a mark of his respect for your profession, and with some sacrifice on his part, from a domestic standpoint at least, that he comes here to-night to represent the citizens of Cincinnati and give you your annual address. This sacrifice of personal inclination is evident when I tell you that the judge's daughter arrives from Europe to-morrow in New York City, and that Mrs. Harmon and other members of the family have gone on to meet her. The Judge, however, stays here for the purpose of meeting the members of this Association, and speaking to you.

At the close of the address, we want to have the opportunity of meeting the members of this Association, and especially of meeting the ladies who have accompanied you, on the parlor floor of the hotel, where we hope to become acquainted with you.

To-morrow morning it is desired to take the ladies on a special trip to see some of the beauties of our hilltops, and to give them the opportunity of visiting, under the best auspices, the famous Rookwood Potteries, where they will see the methods by which the products of this famous pottery are manufactured—the entire process from the moulding of the clay, the decorating, and the firing of the beautiful and artistic material here produced. Each lady will be presented with a souvenir of the visit to the Rookwood works. The ladies will also be given an opportunity of visiting our Art Museum, within a few thousand feet of the Rookwood Pottery—a magnificent art gallery located in a most picturesque spot in Eden Park—one of the finest you can see anywhere in the country. The entertainment to-morrow morning is under the auspices of the American Laundry Machinery Manufacturing Company, who have kindly co-operated in this special part of the work.

We wish to take you to our hearts and homes. To-night we are going to have you meet some of our good citizens. I hope to have the pleasure of introducing you to the best looking woman in Ohio, bar none. She has allowed me during the past week to accompany her to six concerts of the May Festival and I had told her that if anything happened to me after my inoculation with music of Bach, Haydn, and Wagner, and a lot of those old fellows, to call in the doctor. I told her that if there was anything calculated to put me in the hands of some member of this Association, for examination in your particular line, it was six concerts in one week. So if I display any temporary aberration of mind during this week diagnose it as the after-effects of too much symphony music.

Remember that you are each and every one heartily welcome. There is nothing we will not do for you if we can. The Mayor spoke about our water supply. We have good water; also things that go in water. This is the only convention that I have known the Mayor to address in which he laid such great stress upon water. Let me say that if this water does not agree with you, call on any member of the Entertainment Committee of the Cincinnati League and he will help you out. We are all good mixers. (Applause.)

DR. LANGDON.—*Mr. President, Ladies and Gentlemen:* The American Medical Association, as all of you know, with its approximately fifty thousand members, is the largest and the most influential body of medical men in the world. We are fortunate in having with us to-day a representative of that Association, who is well known to all of you; who has been its president in very recent years, and who is now at the head of what is probably its most important committee, namely, the Committee on Medical Legislation. It affords me much pleasure to call on Dr. C. A. L. Reed, who will welcome you on behalf of the American Medical Association.

DR. REED.—I assure you that no occasion could give me more satisfaction than that of speaking a word of welcome for this State. But I speak in behalf of the organized medical profession of America, because I feel that

the organized medical profession—the general medical profession—has a right to extend a welcoming hand to every organization, especially to organizations of this character, that bring together medical men in the furtherance of some important cause, such for instance, as that which you represent. I say the important cause for the reason that you exemplify one particular phase of the great humanitarian work that is being accomplished by the medical profession in general.

There never was so little nervous disease among the American people in all their history as there is to-day. This, I am aware, is contrary to the usual impression, but the proportion of these diseases, as shown by the vital statistics of the United States, indicates a brighter day for the American people. During the last decade of the last century, the mortality statistics from nervous diseases dropped from 247 to 217 per hundred thousand in the United States, a decline of thirty points. In the last year concerning which statistics are available, we have a still more encouraging outlook. In 1900 the mortality figures indicated 217 per hundred thousand, while in 1905 we dropped to 192, and in 1906 to 174, a decline of twenty points in the short period of twelve months, the figures being based upon the registration areas reporting to the Vital Statistics Bureau at Washington. This, I say, is a sign of a more hopeful time.

We hear people sometimes harking back to the good old times, and the only reason they do so is because they do not know what the good old times were. In America the good old times were strenuous times; they were times of labor, care and privation. American life has never been so full of opportunity for the full development of average manhood and womanhood as it is to-day. No people on the face of the earth ever lived so well as the American people to-day. There is a certain important relationship between nutrition and insanity. Well-nourished people are not very liable to go crazy.

But you, gentlemen, as an organized body, have existed longer than any other body of organized medical men in the United States. You are older by years than the American Medical Association. You have been studying this problem from the viewpoint of the disastrous results of our American lives. You have been analyzing the consequences and tracing them back to a primitive cause, and the literature that has emanated from this Association in sixty-four years has probably done more than the literature of any other similar body of men to help in the uplift of the American people. The intelligence and knowledge that you have evolved has filtered through the masses and has gone very far to illuminate the public intelligence on questions of right living. Right living means that we shall have the best health, longest life, fullest life, best life.

And why should you not be welcome? Why should not our Mayor with all that cordiality he always feels for the stranger in his gates, and why should not these eloquent gentlemen who have been the mouthpiece of the community, why should not they come here and ask you to hold your councils among us, and enlighten the community anew with the intelligence that

radiates from your deliberations? Gentlemen, you are cordially welcome. (Applause.)

MAYOR MARKBREIT.—*Mr. Chairman*, I wish to say that I am very sorry that I have to leave this meeting, but I have some official business which requires attention. I wish you a most delightful time and every success in this good old town of Cincinnati.

I might add you can see how good the people are in this town when they elected an old cripple like myself for Mayor.

MR. MELISH.—We elected him for his heart and brains, not for his legs. (Applause.)

On motion of Dr. Hill, a rising vote of thanks was tendered the Mayor for his cordial words of welcome.

MAYOR MARKBREIT.—Thank you very much, gentlemen; you do my soul good.

DR. LANGDON.—*Mr. President and members of the Association*: The seven thousand more or less physicians of the State of Ohio are represented in the person of the President of the Ohio State Medical Association. I do not know of anything derogatory that can be said about the president. I incidentally learned last night that he is made of the stuff of which presidents and giants are made. He was at a large meeting at which the vote of the representation of another county was in dispute on account of some deficiency in the treasury, and he said, "I will just settle that," and wrote his check and gave it to the treasurer of that body, and they went in with their credentials established. (Applause.)

DR. BONIFIELD.—It gives me very great pleasure on behalf of the Ohio State Medical Association and the medical profession of Ohio, to welcome you to Ohio's Queen City. We believe that Ohio is one of the greatest states in the greatest nation on the face of the earth. Greatest not from the standpoint of her army or her navy, but from the standpoint spoken of by my predecessor on the floor—because in this country, better than any place else on the face of God's green earth, a man is permitted to rise to that position in society for which he is endowed by nature and education. Ohio, as I say, is one of the greatest of these states. Within its borders we have all sorts of country and all sorts of people. Those of you who came here by daylight must have been impressed by the beauty of the hills over which you passed and the fertility of the plains through which your train came.

These hills contain, not the precious metals, but something equally valuable, and certainly more useful. They furnish the black diamonds with which we warm our homes and with which we light our furnaces and keep our factories going. These hills also contain clay from which we make not only the ugly and useful tiles with which to drain our swamps, but better tiles to roof our houses, and bricks with which to build them, or pave our

streets and make our furnaces, and also that artistic Rookwood ware of which Mr. Melish has spoken. In all this country there is no soil more fertile than you can find in the broad valleys of the Miami. No country can produce better wheat, corn or anything else that grows in the ground.

But after all, it is not the product of the hills and valleys of which we are proudest, but it is our people. Ohio has furnished men who have achieved fame in every calling of life. She has not only furnished physicians of world-wide reputation who have dwelt within her borders, but many who have gone to distant states. Her lawyers have fame as extensive as the borders of the United States; her preachers are equally well known, and you know that Ohio is the mother of presidents. She has already given birth to several and we of Cincinnati confidently believe that she is again pregnant and in November will present the world another lusty one. (Applause.)

The medical profession of the State of Ohio is worthy of this great state in every way. The organized profession numbers about four thousand members. We had a meeting in Columbus this last week and there were 750 in attendance. You all know what organization is doing for the medical profession—how it is improving the conditions of practice, how it is constantly fighting the battle for better practitioners of medicine, elevating the standards of education for the regular profession, keeping the bars up against the admission of those who would come in irregularly.

Now this profession of Ohio I say warmly welcomes you to Cincinnati, her Queen City. We believe that the queen will dispense to you a regal hospitality and that when you go away, you will do so with feelings of regret, and that it will not be long before this Association will again be glad to come among us. We are especially glad to welcome the Association that cultivates and studies the psychological problems of medicine, because we have a feeling that along this line we need more light. The medical profession has in the past, to a certain extent, been neglectful of the psychological branch. Every irregular practitioner uses the power of suggestion in the treatment of his diseases. It is the little grain of truth in the bushel of chaff in Christian Science. Every successful practitioner recognizes the value of suggestion and uses it to a greater or less extent. Certainly the profession is richer and better for having a thorough study of this branch of medicine and putting it alongside the use of drugs and other therapeutic measures.

The regular profession can view with equanimity the progress of these new fads, Christian Science and Osteopathy, because there is a law in operation now and it will be in operation long after these have ceased to exist and given place to delusions, and that is the law of the survival of the fittest. I think there can be no question when you consider that every real advance in medicine and surgery has been made by the regular profession, and by members of that profession who were endowed by nature and equipped by education for the work that scientific medicine, as taught and practiced by the regular school is the fittest. Since these facts remain true,

the regular medical profession has nothing to fear, and can look forward to a useful and brilliant future.

Gentlemen, I again bid you welcome. (Applause.)

DR. BURGESS.—Dr. Hill has proposed a vote of thanks to the Mayor. I wish to propose a vote of thanks to the other gentlemen for the inspiring addresses they have given us and the hearty welcome they have extended. I think we owe it to them.

Dr. Burgess' motion was duly seconded and unanimously prevailed.

THE PRESIDENT.—I will now call upon Dr. Langdon for the report from the Committee of Arrangements.

REPORT OF COMMITTEE OF ARRANGEMENTS.

Mr. President, and Members of the American Medico-Psychological Association.—Ladies and Gentlemen: As the representative of Dr. F. W. Harmon, Chairman of your Committee of Arrangements, whose recent serious illness has been a matter of deep concern to us all, and at whose happy convalescence we now rejoice, I have the honor to present the following report, prepared by Dr. Harmon.

It is more than a quarter of a century since this Association last met in Cincinnati, a period which has witnessed throughout the country a steady advance in the treatment and care of the insane, and in the general management of institutions.

We in Ohio have built three large institutions on the cottage plan, and have practically built over the old institutions. We have transferred the insane from almshouses to hospitals under state care—established training schools for nurses, adopted a larger scale of wages under civil service rule, increased the night surveillance of wards. We have opened receiving cottages for the better care and observation of acute cases, and infirmary wards for the more competent care of the infirm. More pathological work is being done, and some of us now have courses of lectures in clinical psychiatry, under competent instructors. Patients are taught in various useful industries, as, for instance, needle work, wood carving, manufacture of clothing, etc.—not in the old desultory way, but during regular hours of each day.

It gives me much pleasure to note the growing sentiment throughout the state against political interference in State institutions. A bill was introduced last winter providing for absolute divorce of all State institutions from even the appearance of evil in this direction. Fine or imprisonment—or both, are imposed upon any person soliciting campaign assessments from officers or employees of any public institution, likewise upon any officers or employees who tender money for political purposes. The superintendent is made supreme head, with absolute control over officers and employees—any attempt upon the part of a member of a Board of Trustees to interfere with the head of an institution in his relation to officers, or employees, is considered sufficient for his removal from office. I fear that the bill is still

in the inside pocket of some committee-man, but we have great hopes of its passage next winter.

To-night the annual address will be delivered by Hon. Judson Harmon, in the large Assembly Hall on the 9th floor. After which a reception will be tendered the President and members by citizens of Cincinnati, in the Grand Gallery on the second floor.

On Wednesday after the noon adjournment, the members and of course the ladies are cordially invited to take luncheon with us at Longview. Special cars will leave the Post Office at 12 noon. It is very necessary that we know how many will accept the invitation, so that transportation can be provided. Please notify the Secretary. We wish to emphasize the cordiality of this invitation. The afternoon session will be held at Longview. The management of the Cincinnati Sanatorium at College Hill, extends a cordial invitation to the Association to visit that institution on Thursday. Trolley cars will leave Government Square (Post Office), at 12 noon. Luncheon will be served at 1.30. The afternoon session will be held at the institution. Those desiring to go will kindly notify the Secretary promptly. Tickets admitting members and guests of the Association to the Zoological Gardens, the Art Museum, Eden Park and the Rookwood Pottery on Mount Adams, may be obtained of the Secretary. Members may then visit those places of interest in parties to suit their own convenience. It will not be necessary to go in a body, or as a large excursion.

Your Committee desires to extend its sincere thanks to those who have so cheerfully assisted in these arrangements for your comfort; particularly to the Hon. William B. Melish and the membership of the Cincinnati League, and to the other distinguished gentlemen who have contributed to the social features of the programme.

In conclusion let us wish the Association a successful meeting, and a most pleasant and profitable sojourn in the Queen City.

F. W. HARMON,

F. W. LANGDON,

Committee of Arrangements.

THE PRESIDENT.—You hear the report of the Committee of Arrangements. If there is no objection, the report will stand accepted.

The Chair wishes to extend a cordial invitation to all members of the profession and citizens generally to attend the sessions of this Association. The programs for Wednesday and Thursday evenings will be of general public interest, and I would suggest that if any of you have friends in the city, that you will extend this cordial invitation.

The next item is the report of the Council, which will be read by the Secretary.

REPORT OF THE COUNCIL TO THE AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION.

CINCINNATI, OHIO, MAY 12, 1908.

The Council recommends that the following named physicians be elected to active membership in the Association:

Thomas C. Biddle, M. D., Topeka, Kans.; Oliver C. Brunk, M. D., Williamsburg, Va.; William B. Cornell, M. D., Baltimore, Md.; Edward A. Everett, M. D., Elmira, N. Y.; Menas S. Gregory, M. D., New York, N. Y.; Edward M. Green, M. D., Milledgeville, Ga.; Lewis H. Gundry, M. D., Relay, Md.; Graeme M. Hammond, M. D., New York, N. Y.; Wilfred W. Hawke, M. D., Philadelphia, Pa.; Smith Ely Jelliffe, M. D., New York, N. Y.; George W. King, M. D., Jersey City, N. J.; William C. Krauss, M. D., Buffalo, N. Y.; Harry W. Mitchell, M. D., Bangor, Me.; A. S. Priddy, M. D., Marion, Va.; William Pritchard, M. D., Gallopolis, O.; William L. Robins, M. D., Washington, D. C.; Frank T. Seybert, M. D., Council Bluffs, Ia.; Charles H. Solier, M. D., Evanston, Wyo.; John J. Twohey, M. D., Buffalo, N. Y.

The Council recommends that the following named physicians be elected to associate membership in the Association:

Samuel W. Crittenden, M. D., Boston, Mass.; George Donchue, M. D., Independence, Ia.; Charles H. Dolloff, M. D., Concord, N. H.; Edgar B. Funkhauser, M. D., Trenton, N. J.; Frederick H. Hammond, M. D., Trenton, N. J.; George B. Landers, M. D., Concord, N. H.; Dean Miltimore, M. D., Poughkeepsie, N. Y.; Mary O'Malley, M. D., Washington, D. C.; William C. Sandy, M. D., Trenton, N. J.; Walter A. Taylor, M. D., Trenton, N. J.

The Council has received and considered the applications of the following named physicians for active membership in the Association. In accordance with the provision of the constitution, final consideration will be deferred until the meeting in 1909.

Louis B. Baldwin, M. D., Jamestown, N. D.; Albert Warren Ferris, M. D., New York, N. Y.; Max G. Schlapp, M. D., New York, N. Y.; C. Howard Searle, M. D., Palmyra, Wis.; Edward B. Shellenberger, M. D., Warren, Pa.; Henry S. Upson, M. D., Cleveland, O.; William Rushmer White, Ellicott City, Md.

The Council recommends that the Secretary be empowered to expend such amounts as may be necessary to keep up the records and the clerical part of his work.

The Council has directed that all present and future dues of Dr. Theodore W. Fisher, of Boston, Mass., be remitted, and that his name be retained upon the rolls of the Association as a member.

The Council transmits herewith a letter from Dr. W. H. Carmalt, Secretary of the Congress of American Physicians and Surgeons, with the recommendation that the President be directed and empowered to nominate to the Association the delegate and alternate to represent this Association on the Executive Committee of the Congress.

Respectfully submitted,

CHAS. W. PILGRIM, *Secretary*.

On motion of Dr. Burgess, the report of the Council was accepted and adopted, the physicians proposed for election to come up to-morrow in regular course.

THE PRESIDENT.—I will now call for the report of the Treasurer.

REPORT OF TREASURER FOR YEAR 1907-1908.

RECEIPTS.

Balance on hand.....	\$2,229.75	
Received for dues:		
Active members	1,240.45	
Associate members	211.00	
Sale of gummed lists.....	4.00	
Sale of Blakston's Autopsies.....	1.00	
Sale of Transactions.....	9.00	
Interest	65.59	
	<hr/>	\$3,760.79

EXPENDITURES.

Printing:

700 copies of Transactions....	\$1,049.03	
600 Lists of Members.....	18.75	
38 lots of reprints.....	76.00	
600 additions and changes....	2.80	
600 mailing boxes.....	18.00	
Expressage on reprints.....	20.29	
Expressage on Transactions.....	100.61	
Expressage on printing.....	2.80	
Stenographer's services,		
Washington meeting	33.25	
Stenographer's expenses	42.34	
Expenses Committee of		
Arrangements	26.99	
Programs	17.25	
Envelopes	11.80	
Circulars	1.50	
Clerical services, 20 months		
(Oct. '05-May '07), @ \$5....	100.00	
Postage	10.00	
Printing	3.75	
Refund, overpayment of dues....	4.00	
Appropriation, American Journal		
of Insanity.....	300.00	
Exchange on foreign checks.....	1.22	
Balance to new account:		
New York Produce Exchange		
Bank	458.47	
Emigrant Industrial Savings		
Bank	1,461.94	
	<hr/>	\$3,760.79

Uncollected dues:

Active members.....	\$775.00
Associate members.....	181.00

Total \$956.00

Respectfully submitted,

CHARLES W. PILGRIM,
Treasurer.

THE PRESIDENT.—You have heard the report of the Treasurer. If there is no objection, this report will be referred to the Auditors for comparison with the Treasurer's books and vouchers and their final report.

The next in order is the report of the Editors of THE AMERICAN JOURNAL OF INSANITY. Dr. Brush, who will present this report, is not present, but will be later, and the Chair will therefore defer this report to a later session.

The next in order is the appointment of the Nominating Committee. This duty I believe devolves upon the Chair, and I will therefore appoint the following named members to serve on this committee:

Dr. G. Alder Blumer, Rhode Island, *Chairman*; Dr. J. Percy Wade, Maryland; Dr. Hubert Work, Colorado.

I will now declare a recess of fifteen minutes for the purpose of registration. Each member and visitor is earnestly requested to fill out one of the cards on the Secretary's table.

The following members registered, and were in attendance during the whole or a part of the meeting:

Adams, George S., M. D., Superintendent, Westborough Insane Hospital, Westborough, Mass.

Allen, Henry D., M. D., Superintendent, Allen's Invalid Home, Milledgeville, Ga.

Arthur, Daniel H., M. D., Superintendent, Gowanda State Hospital, Gowanda, N. Y.

Ashley, Maurice C., M. D., Medical Superintendent, Middletown State Hospital, Middletown, N. Y.

Atkins, Henry S., M. D., Superintendent, St. Louis Insane Asylum, St. Louis, Mo.

Bancroft, Charles P., M. D., Superintendent, New Hampshire State Hospital, Concord, N. H.

Beutler, William F., M. D., Superintendent, Asylum for Chronic Insane, Wauwatosa, Wis.

Biddle, Thomas C., M. D., Superintendent, Topeka State Hospital, Topeka, Kan.

Blumer, G. Alder, M. D., Medical Superintendent, Butler Hospital, Providence, R. I.

Brown, Sanger, M. D., Kenilworth Sanatorium, Kenilworth, Ill.

Brush, Edward N., M. D., Physician-in-Chief and Superintendent, Shepard & Enoch Pratt Hospital, Towson (Station A, Baltimore), Md.

Burgess, Thomas J. W., M. D., Medical Superintendent, Protestant Hospital for Insane, Box 2562, Montreal, Canada.

Calder, Daniel H., M. D., Superintendent State Mental Hospital, Provo, Utah.

Caples, B. M., M. D., President and Superintendent Waukesha Springs Sanatorium, Waukesha, Wis.

Carriel, Henry B., M. D., Superintendent Illinois Central Hospital for the Insane, Jacksonville, Ill.

Clark, Charles H., M. D., Superintendent Cleveland State Hospital, Cleveland, O.

Clarke, Charles K., M. D., Medical Superintendent, Toronto Hospital for Insane, 999 Queen St., Toronto, Canada.

Cotton, Henry A., M. D., Medical Director, New Jersey State Hospital, Trenton, N. J.

Crumbacker, William P., M. D., Superintendent Independence State Hospital, Independence, Ia.

Dewey, Richard, M. D., Physician-in-Charge, Wilwaukee Sanatorium, Wauwatosa, Wis.

Dewing, Oliver M., M. D., Medical Superintendent Long Island State Hospital, Brooklyn, N. Y.

Dill, D. M., M. D., Superintendent Essex County Hospital for the Insane, Newark, N. J.

Dold, William E., M. D., Medical Superintendent River Crest, Astoria, L. I., N. Y.

Drewry, William F., M. D., Superintendent Central State Hospital, Petersburg, Va.

Edenharter, George F., M. D., Medical Superintendent, Central Indiana Hospital for Insane, Indianapolis, Ind.

Elliott, Robert M., M. D., Superintendent, State Hospital, Willard, N. Y.

Fisher, E. Moore, M. D., Assistant Physician, New Jersey State Hospital, Morris Plains, N. J.

French, Edward F., M. D., Superintendent, Medfield Insane Asylum, Harding, Mass.

Gordon, William A., M. D., Superintendent, Northern Hospital for Insane, Winnebago, Wis.

Gorst, Charles, M. D., Superintendent, State Hospital for the Insane, Mendota, Wis.

Guth, Morris S., M. D., Superintendent, State Hospital for the Insane, Warren, Pa.

Hancker, William H., M. D., Superintendent, Delaware State Hospital, Farnhurst, Del.

Hanes, Edward L., M. D., Assistant Physician, State Hospital, Rochester, N. Y.

Harrington, Arthur H., M. D., Superintendent, State Hospital for the Insane, Howard, R. I.

Hattie, William H., M. D., Medical Superintendent, Nova Scotia Hospital, Halifax, N. S.

Hawke, Winfred W., M. D., Chief Resident Physician, Philadelphia Hospital for the Insane, Philadelphia, Pa.

Hill, Charles G., M. D., Physician-in-Chief, Mt. Hope Retreat, Baltimore, Md.

Hitchcock, Charles W., M. D., Attending Neurologist, Harper Hospital, 270 Woodward Ave., Detroit, Mich.

Hobbs, Alfred T., M. D., Medical Superintendent, Homewood Sanatorium, Guelph, Ont., Canada.

Houston, John A., M. D., Superintendent, Northampton State Hospital, Northampton, Mass.

Howard, E. H., M. D., Superintendent, Rochester State Hospital, Rochester, N. Y.

Hurd, Arthur W., M. D., Superintendent, Buffalo State Hospital, Buffalo, N. Y.

Hurd, Henry M., M. D., Superintendent, The Johns Hopkins Hospital, Baltimore, Md.

Hutchings, Richard H., M. D., Medical Superintendent, St. Lawrence State Hospital, Ogdensburg, N. Y.

Kilbourne, Arthur F., M. D., Superintendent, Rochester State Hospital, Rochester, Minn.

Langdon, F. W., M. D., Medical Director, Cincinnati Sanatorium, 5 Garfield Pl., Cincinnati, O.

Laughlin, Chas. E., M. D., Medical Superintendent, Southern Indiana Hospital for Insane, Evansville, Ind.

Lyons, A. J., M. D., Superintendent Second Hospital for Insane, Spencer, W. Va.

Mabon, William, M. D., Medical Director, Manhattan State Hospital, Ward's Island, N. Y.

Meredith, H. B., M. D., Superintendent, State Hospital for Insane, Dansville, Pa.

Meyer, Adolf, M. D., Director Pathological Institute, Manhattan State Hospital, Ward's Island, N. Y.

Meyers, Donald C., M. D., Toronto General Hospital, Deer Park, Ont., Canada.

Miller, Harry W., M. D., Psychopathologist, Cook County Institutions, Dunning, Ill.

Mitchell, H. W., M. D., Medical Superintendent, Eastern Maine Insane Hospital, Bangor, Me.

Norbury, Frank P., M. D., Medical Superintendent, Maplewood Sanatorium, Jacksonville, Ill.

O'Brien, John D., M. D., Pathologist and Assistant Physician, Massillon State Hospital, Massillon, O.

O'Hanlon, George, M. D., First Assistant Physician, Kings Park State Hospital, Kings Park, N. Y.

Orth, H. L., M. D., Superintendent, State Lunatic Hospital, Harrisburg, Pa.

Packard, Frederick H., M. D., Assistant Physician, McLean Hospital, Waverly, Mass.

Page, Chas. W., M. D., Physician and Superintendent, Danvers Insane Hospital, Hathorne, Mass.

Palmer, H. L., M. D., Superintendent, Utica State Hospital, Utica, N. Y.

Perry, Middleton Lee, M. D., Superintendent, Kansas State Hospital for Epileptics, Parsons, Kan.

Pilgrim, Chas. W., M. D., Medical Superintendent, Hudson River State Hospital, Poughkeepsie, N. Y.

Prout, Thomas P., M. D., Fair Oaks Sanatorium, Summit, N. J.

Redwine, J. S., M. D., Medical Superintendent, Eastern Kentucky Asylum for Insane, Lexington, Ky.

Richardson, William W., M. D., Chief Physician, Department for Men, State Hospital for Insane, Norristown, Pa.

Rogers, C. B., M. D., Resident Physician, Cincinnati Sanatorium, Station K, Cincinnati, O.

Russell, William L., M. D., Medical Inspector, State Commission in Lunacy, Poughkeepsie, N. Y.

Sanborn, Biglow T., M. D., Superintendent Maine Insane Hospital, Augusta, Me.

Scribner, E. V., M. D., Medical Superintendent, Worcester Insane Asylum, Worcester, Mass.

Searcy, J. T., M. D., Superintendent, The Alabama Insane Hospitals, Tuscaloosa, Ala.

Searl, William A., M. D., Director, Fair Oaks Villa Sanatorium, Cuyahoga Falls, O.

Searle, C. Howard, M. D., Superintendent, Palmyra Springs Sanatorium, Palmyra, Wis.

Shanahan, William T., M. D., First Assistant Physician, Craig Colony for Epileptics, Sonyea, N. Y.

Shepard, A. F., M. D., Superintendent, Dayton State Hospital, Dayton, O.

Smith, G. A., M. D., Superintendent, Central Islip State Hospital, Central Islip, L. I., N. Y.

Smith, Samuel S., M. D., Superintendent, Eastern Indiana Hospital, Easthaven, Richmond, Ind.

Southard, Elmer E., M. D., Pathologist, Assistant Professor Neuro-pathology, Danvers Insane Hospital, 240 Longwood Ave., Boston, Mass.

Stockton, George, M. D., Superintendent, Columbus State Hospital, Columbus, O.

Tuttle, George T., M. D., Medical Superintendent, McLean Hospital, Waverly, Mass.

Villeneuve, George, Medical Superintendent, St. Jean de Dieu Hospital for the Insane, P. O. Box 1147, Montreal, Canada.

Wade, J. Percy, M. D., Medical Superintendent, Maryland Hospital for the Insane, Catonsville, Md.

Wentworth, Lowell F., M. D., Deputy Executive Officer, State Board of Insanity, 36 State House, Boston, Mass.

White, Moses J., M. D., Medical Superintendent, Milwaukee Hospital for the Insane, Milwaukee, Wis.

White, William A., M. D., Superintendent, Government Hospital for the Insane, Washington, D. C.

Williams, B. A., M. D., Senior Resident Physician, Cincinnati Sanatorium, Station K, Cincinnati, O.

Wolfe, Mary M., Resident Physician, Department for Women, State Hospital for the Insane, Norristown, Pa.

Work, Herbert, M. D., Superintendent, Woodcroft Hospital for the Insane, Pueblo, Col.

Yeamen, Malcom H., M. D., Superintendent, Beechurst Sanatorium, Louisville, Ky.

Zeller, George A., Superintendent, Illinois General Hospital for the Insane, Peoria, Ill.

The following visitors and guests of the Association registered their names with the Secretary:

Arthur, Mrs. D. H., State Hospital, Gowanda, N. Y.

Ashley, Mrs. M. C., Middletown, N. Y.

Atherton, Miss, Danvers Insane Hospital, Hathorne, Mass.

Atherton, H. H., Danvers Insane Hospital, Hathorne, Mass.

Bailey, Alexander, M. D., Superintendent, Feeble Minded Institution, Frankfort, Ky.

Brooks, F. B., M. D., Superintendent, Grandview Sanatorium, 414 Walnut St., Cincinnati, O.

Beutler, Mrs. William F., Asylum for Chronic Insane, Wauwatosa, Wis.

Board, Hilton, M. D., Member Kentucky State Board of Control, Frankfort, Ky.

De Jarnette, J. S., M. D.

Drewry, Mrs. William F. Petersburg, Va.

English, W. W., M. D., Medical Superintendent, Hospital for the Insane, Hamilton, Ontario, Canada.

Ferris, Albert Warren, M. D., President, State Commission in Lunacy, Albany, N. Y.

French, Edward, Jr., Harding, Mass.

Gorst, Mrs. Dr. Chas., Mendota, Wis.

Guth, Mrs. Morris S., State Hospital, Warren, Pa.

Haley, Percy, Member, Kentucky Board of Control, Frankfort, Ky.

Howard, Mrs. E. H., State Hospital, Rochester, N. Y.

Hutchings, Mrs. Richard H., Ogdensburg, N. Y.

Jelliffe, Smith Ely, M. D., 64 West 56th St., New York City.

Jones, L. M., M. D., Superintendent, Georgia State Sanatorium, Milledgeville, Ga.

King, Geo. W., M. D., Medical Superintendent, Laurel Hill, Jersey City, N. J.

Milward, Stanley, State Board of Control, Lexington, Ky.

Mulligan, L. H., M. D., Superintendent, Central Kentucky Asylum for the Insane, Lakeland, Ky.

Rand, Mrs. A. L., Trustee, Medfield Asylum, 50 Grafton St., Newton Centre, Mass.

Scott, Albert, Chairman, Kentucky State Board of Control for Charitable Institutions, Frankfort, Ky.

Scribner, Mrs. E. V., Worcester Insane Asylum, Worcester, Mass.

Stephens, J. W., M. D., Superintendent, Western Kentucky Asylum for the Insane, Hopkinsville, Ky.

Stone, Edward E., M. D., Medical Superintendent, Napa State Hospital for the Insane, Napa, Cal.

Uhls, L. L., M. D., Superintendent State Hospital, Osawatomie, Kan.

THE PRESIDENT.—I wish to call the attention of the Nominating Committee to the fact that it will be necessary to submit a name to fill the vacancy in the Council caused by the death of Dr. P. L. Murphy, so that they will present five names for the Council.

It has been our custom within the last two or three years to have the obituary notices read at an earlier stage in the proceedings—a very wise and considerate course. We have this year lost by death a number of distinguished members, and I will call for the memorial notices now.

The following memorial notices were read:

Dr. Theophilus O. Powell, by James T. Searcy, M. D.; Dr. Robert J. Preston, by William F. Drewry, M. D.; Dr. Randolph Barksdale, by William F. Drewry, M. D.; Dr. Joseph G. Rogers, by S. E. Smith, M. D.; Dr. Peter M. Wise, by J. Montgomery Mosher, M. D. (by title); Dr. John Ordronaux, by Edward N. Brush, M. D. (by title); Dr. Frank H. Magness, by John R. Knapp, M. D. (by title); Dr. Charles F. Folsom, by G. Alder Blumer, M. D. (by title); Dr. Marcello Hutchinson, by George T. Tuttle, M. D. (by title); Dr. P. L. Murphy, by J. W. Babcock, M. D. (by title).

THE PRESIDENT.—Is there any other business before this session?

DR. KILBOURNE.—*Mr. President:* I would like to give expression to a thought I have had regarding our illustrious dead—members of this Association—superintendents of different hospitals throughout the country. It seemed to me that this Association might look up the records of these men, and, if possible, place a memorial tablet in the institution with which each was more largely identified. Something that would be a memorial of their lives and works, and I should like to hear an expression from the members of this Association.

THE PRESIDENT.—You hear what Dr. Kilbourne says with reference to the idea of the Association in some way, through committees probably, looking up the records of its illustrious dead and having memorial tablets placed in the hospitals with which the members have been associated.

DR. HILL.—I think the suggestion is a good one, but it is so absolutely new that I do not think we are hardly in condition to consider it. I think the suggestion is so good that it would be well worth taking up and presenting it in some concrete form for the consideration of the Association. I can see that a memorial tablet to each departed member is a tremendous undertaking if we attempt to commemorate all the illustrious dead of our Association. I think it is a matter we can consider and very probably act upon in a way satisfactory to us all. I would suggest, without making a motion, that Dr. Kilbourne at some future time bring the matter before us in a more concrete form for our action.

DR. BURGESS.—I don't want to throw any more work on Dr. Pilgrim's shoulders, but might it not be possible to put photographs of our deceased presidents in our transactions, I think we could get them. In the meantime, could we not get photographs of the presidents for those volumes of the transactions already issued? I for one would be very glad to have them and keep them as mementoes of our deceased presidents.

THE PRESIDENT.—Personally, it occurs to the Chair that the remarks made by Dr. Burgess contain a good suggestion as to the kind of memorial which this Association can present to institutions over which former members have presided as superintendents. A large platinum print, properly framed, makes a very appropriate memorial. Such a portrait, located in some suitable place in the institution as a gift of the Association, would convey the tribute of respect and memory that this society might wish to accord such of its members who have held positions of trust in the various hospitals throughout the country.

Has any one any further suggestion to make?

DR. S. E. SMITH.—It seems to me that since the concrete proposition has not been worked out, it might be well to appoint a committee of which Dr. Kilbourne might be chairman, to consider this matter and report at the next meeting some particular plan. I make that as a motion.

Seconded by Dr. Caples. Amendment offered that the Council be substituted for the proposed committee, to report at some future meeting at this session.

THE PRESIDENT.—It has been moved and seconded that the Council take up the matter of some form of a memorial to the deceased members of this Association and present their conclusions at some future meeting at this session.

DR. WORK.—It seems to me that the amendment and Dr. Smith's original motion was rather incompatible, for the reason that the Council comes

together only at the annual meetings, and has then a large amount of business to transact. A certain number of the Council go out of office and new men are elected. It is my belief that if this matter were referred to a committee which had no other official duty to take care of during the meeting, or think of during the year, that it would be able—by limiting the number perhaps to three—by correspondence and conference, to give the matter more thought, and it would be likely to get more practical results than if left to the larger body, the Council.

DR. S. E. SMITH.—What I had in mind, Mr. President, was getting quick action in the matter, after, of course, due deliberation.

THE PRESIDENT.—If the Chair might be allowed to suggest—I think perhaps more definite action could be obtained through a committee, rather than through the Council. I think the time of the Council is pretty well occupied with the business of the annual meetings. If there is no objection, the amendment will be withdrawn and the original motion appointing a committee will be put. The Chair hears no objection, and it is moved and seconded that the Chair appoint a committee to report on this matter of a memorial for deceased members at some future meeting at this session.

Which motion prevailed.

THE PRESIDENT.—The Chair will appoint the following members: Dr. Arthur F. Kilbourne, Chairman; Dr. S. E. Smith, Dr. C. G. Hill.

I wish to announce that the Council will met at 5 o'clock this afternoon in the Council room.

A recess was then taken until 2.30 p. m.

AFTERNOON SESSION.

The meeting was called to order by the President at 2.30 p. m.

THE PRESIDENT.—I am requested by Mr. Johnson to notify the ladies that automobiles will be ready to start from the front door of the hotel to-morrow morning at 9 o'clock sharp, to take the trip to the Rookwood Pottery, the glass works and the park.

DR. C. G. HILL, in the Chair.—Gentlemen, the next thing on the program is the event we always look forward to with a great deal of pleasure—that is the address of the President. I am sure you will take great pleasure in listening to Dr. Bancroft's address. (Applause.)

The President then read his address, "Hopeful and Discouraging Aspects of the Psychiatric Outlook," which was greeted with much applause.

DR. HILL, in the Chair.—Gentlemen, you have heard the very able and brilliant address of the President, and while the President's address is above discussion, it will be in order to express your interest.

DR. HENRY M. HURD.—I take great pleasure in moving that the thanks of the Association be tendered to Dr. Bancroft for his illuminating address. He has given us all much food for thought. I hope we may be able to take some action upon the subject of the address before the Association adjourns.

DR. BLUMER.—I take great pleasure in seconding Dr. Hurd's motion. I would like to make the suggestion that the President change the title of his paper from its present long one to "Common Sense from Concord, New Hampshire." (Applause.)

The President resumed the Chair and the following papers were read:

"Some Data in Reference to Insanity in the Rural Districts," by Bigelow T. Sanborn, Augusta, Me.

Dr. Sanborn's paper was discussed by Drs. Henry M. Hurd, E. N. Brush, A. W. Hurd, Wentworth, Mitchell, and Dr. Sanborn in closing.

"The Relation of Urban Life to Insanity," by Michael Campbell, M. D., Bearden, Tenn. (By title.)

THE PRESIDENT.—The motion to adjourn is in order, but I would first suggest that, on account of the trip to Longview Hospital to-morrow, it would be advisable for us to meet more promptly, as we do not wish to be late on our arrival at that institution.

On motion, the meeting adjourned.

EVENING SESSION.

WM. B. MELISH.—*Ladies and Gentlemen:* I have the pleasure of introducing to those who are strangers in our midst one of our distinguished citizens, a gentleman who has served this city and county for years as a judge on the bench; served his country as the Attorney-General of the United States, and seems to be willing to serve his State and country again, as he has just been nominated by the Democracy of Ohio as their candidate for governor. It is proper, therefore, that in the capacity of a candidate for public office, as well as that of a citizen, I introduce him to this distinguished assembly of gentlemen, who are experienced in all forms of mental derangement. I have the pleasure of introducing to you the Hon. Judson Harmon, who will now address you. (Applause.)

Mr. Harmon then addressed the meeting confining his remarks mainly to certain points in jurisprudence having particular relation to psychiatry.

WM. B. MELISH.—May I take this opportunity of saying to the ladies accompanying the members of the Association that to-morrow morning at

9.30 we would like to have you in the ladies' parlor of the hotel that the committee may take you on a trolley ride to some of the principal hilltops, and especially to give you an opportunity of seeing the various steps in the manufacture of the beautiful and justly famed Rookwood work. We want to take the ladies to the Rookwood pottery, and let them see how this work is done in all of its processes, from mixing the clay to the firing and decorating. We want them each to take with them a souvenir of this Rookwood work, and then we want to give them an opportunity of seeing the art museum of Cincinnati and its beautiful collection, and also our picturesque Eden Park.

Ladies and gentlemen, may I invite you to spend the balance of the evening on the second floor of the hotel in the beautiful gallery, where we want you who are our guests to have an opportunity of meeting some of our Cincinnati friends, who want to extend to you that welcome promised you in the words of our gallant mayor this morning, and the remarks this evening of Judge Harmon.

Dr. Langdon, of the local committee, asks me to remind the members of the Association and the ladies that they will be brought back from the Rookwood pottery and the art museum to the city at a little before 12 o'clock, and that the members of the Association and the ladies are expected to pay a visit in the afternoon to the Longview Hospital for the insane. Special cars will leave the Government Square, in front of the post-office, at 12 o'clock, or a few minutes after. The trolley cars go through a beautiful part of the country before they reach the hospital. It is requested that gentlemen who have the ladies with them give their names to the Secretary of the Association, so that arrangements may be made by the local committee and transportation may be furnished for all those who are going to visit Longview.

I now ask you to repair to the gallery floor that we may have an opportunity of meeting the officers and members of the Association, and of taking you by the hand and becoming better acquainted in the good old hospital Cincinnati fashion. (Applause.)

WEDNESDAY, MAY 13, 10.00 A. M.

The meeting was called to order by the President, who said:

The first business in order is the report of the Council, which will be read by the Secretary.

REPORT OF THE COUNCIL OF THE AMERICAN MEDICO-PSYCHOLOGICAL
ASSOCIATION.

CINCINNATI, OHIO, May 13, 1908.

The Council recommends that the following named physician be elected to associate membership in the Association:

Charles Ricksher, M. D., Danvers Insane Hospital, Hathorne, Mass.

The Council has received and considered the applications of the follow-

ing named physicians for active membership in the Association. In accordance with the provision of the constitution, final consideration will be deferred until the 1909 meeting:

Brooks F. Beebe, M.D., Cincinnati, Ohio; Walter Murray English, M.D., Hamilton, Ontario; L. M. Jones, M.D., Milledgeville, Ga.; J. Moorehead Murdock, M.D., Polk, Penna.; W. J. Robinson, M.D., London, Ontario; Elmer E. Stone, M.D., Napa, Calif.; L. L. Uhls, M.D., Osawatomie, Kansas.

The Council transmits herewith a letter from the Bureau of the Census at Washington, with the recommendation that the President be authorized and directed to appoint a committee of three members of this Association to take up the matter of the nomenclature of mental diseases in the matter suggested in the letter, and to report at the 1909 meeting.

The Council recommends that, beginning with Volume I of the Transactions, photographs of the different Presidents of the Association be procured, reproductions made on loose leaves, and distributed to the different members of the Association for insertion in the various volumes of the Transactions already issued; and that hereafter the Transactions shall contain a picture of the President who presides at that meeting.

Respectfully submitted,

CHAS. W. PILGRIM, *Secretary*.

DEPARTMENT OF COMMERCE AND LABOR,
BUREAU OF THE CENSUS.

Washington, May 9, 1908.

Dr. Charles W. Pilgrim, Secretary, Medico-Psychological Association, Cincinnati, Ohio.

DEAR DOCTOR.—As you will see by the reference on page 57 of the enclosed pamphlet, a special Committee on Nomenclature of Diseases has been constituted by the American Medical Association. It is co-operating with the Bureau of the Census, and is desirous of securing the aid of all National Medical Societies in the work of preparing or recommending a satisfactory nomenclature of diseases for the general use in medical profession in this country, as well as for the special purposes in morbidity, hospital, and morality statistics.

I hope your organization will appoint a Committee on Nomenclature of Diseases at its approaching session, the Chairman of which will represent it as a member of the National Committee. Please advise Dr. Frank P. Foster, 554 West 114th street, New York, of your action, and also kindly inform me of the names of the members appointed, to whom I can send copies of the Manual of International Classification of Causes of Death for their use in connection with this work.

Very respectfully,

CESSY L. WILBUR, *Chief Statistician*.

It was moved and seconded that the report of the Council be accepted and adopted.

DR. HENRY M. HURD.—I would offer as an amendment that in future volumes of the Transactions, the photographs of the Presidents be inserted. I do not think that the past volumes of the Transactions need to have the pictures of the Presidents.

DR. BLUMER.—It would give me very great pleasure to support that amendment. I think there are times when the ex-president of an association like this would be perfectly willing to be spared at least the avoidable penalties of office.

THE PRESIDENT.—The amendment is that in the Transactions that have already been published the insertion of the photographs of the Presidents should be omitted. Will Dr. Gordon accept Dr. Hurd's amendment.

DR. GORDON.—I don't accept that. We want them all in. What reason have they to leave these Presidents out?

DR. BLUMER.—Partly perhaps because the ex-Presidents are already "all in."

DR. DEWEY.—I would like to ask, Mr. President, have not the photographs of the Presidents already been published in the AMERICAN JOURNAL OF INSANITY? Almost without exception, I think they have.

THE PRESIDENT.—The Secretary informs me that they were formerly, but have not been of late years. Is there any further discussion of Dr. Hurd's amendment, which has not been accepted by Dr. Gordon?

DR. BRUSH.—Dr. Hurd's picture has been published in the AMERICAN JOURNAL OF INSANITY; Dr. Macdonald's was; I think, indeed, that pictures of the majority of the Presidents have been published in the AMERICAN JOURNAL OF INSANITY. I think all members who take the JOURNAL will find that they have the majority of the Presidents' portraits in the JOURNAL, and it is an unnecessary expense, it seems to me, to go over the thing again.

DR. GORDON.—I would accept the amendment, if it provided to take out the portraits of the Presidents which have already been published. But I want the full set, for it is a great delight to look at the features of our distinguished ex-Presidents, such as Dr. Hurd, for instance.

DR. H. M. HURD.—I will withdraw my amendment.

DR. GORDON.—I think the picture of every man who has ever been President of this distinguished Association should be hung up in every office.

THE PRESIDENT.—Dr. Hurd withdraws his amendment. As many as are in favor of having the photographs of the past Presidents printed and distributed to the members for insertion in the published volumes of the

Transactions, and the photographs of all future Presidents inserted in future numbers will so declare.

The Chair being in doubt, a rising vote was taken, when the Chair announced the motion carried.

THE PRESIDENT.—The next order of business is the election of new members. You have the ballots; the Secretary will read the names.

(This list will be found in the first report of the Council.)

DR. KILBOURNE.—I move that the Secretary be authorized and directed to cast the ballot of the Association electing these physicians to active and associate membership respectively.

Which motion was duly seconded and unanimously prevailed.

THE PRESIDENT.—The Secretary has so cast the ballot and the physicians whose names have been read are elected to membership.

DR. S. E. SMITH.—There were certain suggestions contained in the President's address yesterday, which have not yet received the attention of the Association, if I understood properly the motion of yesterday in reference to his address.

I move that these suggestions be referred to the Council for a report at some future session of this meeting.

I have in mind the idea of communicating to the Congress.

DR. BRUSH.—I think this is a very proper motion. I intended to offer it yesterday, and I am very glad to second it to-day, to refer these suggestions to the Council with instructions to report at some future session of this meeting.

This motion unanimously prevailed.

THE PRESIDENT.—I will call for the report of the editors of the AMERICAN JOURNAL OF INSANITY which was omitted yesterday.

On motion, the report of the editors as read by Dr. Brush was accepted and the matters therein contained referred to the Council and the Auditors.

THE PRESIDENT.—The next order is the report of the Nominating Committee.

DR. BLUMER.—The Nominating Committee begs leave to submit the following report for officers and members of the Council:

For President, Arthur F. Kilbourne, M. D., Rochester, Minnesota.

For Vice-President, William F. Drewry, M. D., Petersburg, Virginia.

For Secretary and Treasurer, Charles W. Pilgrim, M. D., Poughkeepsie, N. Y.

For Councilors: F. W. Langdon, M. D., Cincinnati, Ohio; M. L. Perry, M. D., Parsons, Kansas; Charles G. Hill, M. D., Baltimore, Md.; Harold L. Palmer, M. D., Utica, N. Y.; W. H. Hattie, M. D., Halifax, Nova Scotia.

For Auditor, J. M. Buchanan, M. D., Meridian, Miss.

DR. H. M. HURD.—I move that the report of the Nominating Committee be accepted and adopted.

Which motion was duly seconded and carried.

THE PRESIDENT.—The next business is the election of the officers as reported by the Nominating Committee.

DR. BRUSH.—I move that the Secretary be authorized and directed to cast the ballot of the Association for the election of the officers as reported by the Nominating Committee.

Which motion was duly seconded and carried.

THE PRESIDENT.—The ballot has been cast and the gentlemen named will be the officers of the Association for the ensuing year.

The next business is the report of the Auditors.

DR. HUTCHINGS.—The Auditing Committee begs leave to submit the following report:

CINCINNATI, OHIO, May 13, 1908.

This is to certify that we have examined the books and vouchers submitted by the Secretary and Treasurer, compared the accounts with his report submitted to the Association, and find that said report is correct as submitted.

We have also examined the vouchers and accounts submitted by the editors of the *AMERICAN JOURNAL OF INSANITY*, and find that report correct as submitted.

(Signed)

R. H. HUTCHINGS,

J. PERCY WADE,

Auditors.

On motion, the report of the Auditors was accepted and adopted.

THE PRESIDENT.—I will now appoint the Committee on Resolutions: Dr. Henry M. Hurd, Chairman; Dr. G. Alder Blumer, Dr. S. E. Smith.

We will now proceed to the reading of papers. I will first call upon Dr. H. M. Hurd to read Dr. Henry J. Berkley's paper, "Concerning Thyreodectomy and the Thyreo-Lecithin Treatment of Catatonia. Ten Consecutive Cases."

DR. H. M. HURD.—Ordinarily I do not favor papers being read for absentee members. It seems to me that every paper should be presented by the author in person, but the great importance of this paper induces me to read it.

Dr. Berkley's paper was discussed by Drs. Brush, H. M. Hurd, Tuttle, Miller, and Jelliffe.

The following papers were read:

"Experimental Research in the Etiology and Treatment of Paresis," by John D. O'Brien, M. D., Massillon, Ohio.

"The Bacteriology of One Hundred Autopsied Cases of Mental Disease together with Brief Clinical, Anatomical and Histological Correlations," by F. P. Gay, M. D., Hathorne, Mass., E. T. F. Richards, M. D., Hathorne, Mass., and E. E. Southard, M. D., Hathorne, Mass. (Read by Dr. Southard.)

The above papers were discussed by Drs. Cotton, O'Brien, Langdon, Packard, and Southard.

DR. LANGDON.—I would like to state, with the permission of the President, that trolley cars will be standing on the track in front of the Custom House—the Postoffice building—promptly at 12 o'clock, so that you have half an hour yet, as you can get there in five minutes. The cars will be waiting at Longview Hospital for the return trip at half-past five, so that you will have abundant time for the afternoon session. There will be vehicles to transport the ladies, children, and the infirm to the institution. Able-bodied men may walk or ride as they choose. Dr. Harmon particularly desires to see you at Longview. You will not need to provide luncheon before you go. Save your appetites until you get there.

THE PRESIDENT.—I wish to call the attention of all members who have not registered to that important duty.

There is a meeting of the Council this evening after the evening session. The newly-elected councilors are expected to attend.

I will now declare a recess until 2.30 o'clock this afternoon, when we will meet at the Longview Hospital.

AFTERNOON SESSION.

At Longview Hospital, Carthage, O.

The meeting was called to order by the President at 3 o'clock. The following papers were read:

"A Visit to the Psychiatric Clinics and Asylums of the Old Land," by Edward Ryan, M. D., Kingston, Ontario.

"Neuropathic Wards in the General Hospitals," by Donald Campbell Meyers, M. D., Toronto, Ontario.

"Insanities Arising in the Sixth and Seventh Decades," by H. W. Mitchell, M. D., Hathorne, Mass., and E. E. Southard, M. D., Hathorne, Mass. (Read by Dr. Southard.) Discussed by Drs. Miller, Southard, Cotton, Mitchell, and Jelliffe.

"New Statistical Methods in New York State," by William L. Russell, M. D., Poughkeepsie, N. Y. (By title.)

THE PRESIDENT.—I will now declare a recess until 8.30 to-night, when we will meet at the Hotel Sinton.

EVENING SESSION.

THE PRESIDENT.—We will listen to the reading of the papers for the evening. I will first call on Dr. Henry M. Hurd, of Baltimore, for his paper, "Psychiatry as a Part of Preventive Medicine."

Dr. Hurd read his paper, which was greeted with applause.

THE PRESIDENT.—The Chair wishes to announce that after this session this evening there is a meeting of the Council in the Council Room, and it is desired that as many of the members of the Council as can be present will attend. The new members elected this morning are, according to the by-laws, entitled to appear at that meeting.

Before calling for the discussion of Dr. Hurd's very interesting and instructive paper, I will call for the reading of a paper on a similar subject, "Psychology in its Relation to Physiology, Psychiatry, and General Medicine," by Dr. Wesley Mills, of Montreal, Quebec. Dr. C. K. Clarke, of Toronto, will read the paper.

The papers of Drs. Hurd and Mills were discussed by Drs. Clarke, Tuttle, the President, Norbury, Brush, Beebe, Blumer, and White.

THE PRESIDENT.—We have one paper which was omitted this afternoon because of lack of time which will be read now, and the other paper omitted, Dr. Hutchings', will be read in the morning. I will call upon Dr. Charles W. Pilgrim for his paper, "The Proper Size of Hospitals for the Insane."

DR. H. M. HURD.—In view of the great importance of Dr. Pilgrim's paper and the fact that many will want to speak on it, I move that the discussion of it be postponed until to-morrow morning.

Which motion was duly seconded and carried.

Dr. Pilgrim's paper was discussed by Drs. Dewing and Hawke. Adjournment.

THURSDAY, MAY 14, 1908, 10.00 A. M.

THE PRESIDENT.—The first business this morning is the report of the Council which will be read by the Secretary.

REPORT OF THE COUNCIL OF THE AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION.

CINCINNATI, OHIO, May 14, 1908.

The Council has authorized the President to appoint a committee of three to confer with the Editorial Board of the AMERICAN JOURNAL OF

INSANITY regarding the proposed enlargement of the JOURNAL and its publication in place of the Transactions; this committee to report at the next annual meeting. The President has appointed as such committee the Secretary, Dr. William A. White, and Dr. W. H. Hattie.

The Council recommends that the President be empowered and directed to appoint a committee to write a history of the Association and biographies of the prominent men connected with it, and that the old committee appointed some years ago be discharged from further consideration of the subject. The President has appointed, subject to the approval of the Association, the following members as this committee:

Dr. Henry M. Hurd, Chairman; Dr. William F. Drewry, for the South; Dr. Richard Dewey, for the West; Dr. Charles W. Pilgrim, for the Middle States; D. G. Alder Blumer, for New England; Dr. T. J. W. Burgess, for British America.

The Council recommends that the incoming President be authorized to appoint a Program Committee to prepare the program for the next annual meeting.

The Council has under consideration the following mentioned places for the next annual meeting, and would ask advice and suggestions from the members of the Association in regard to this matter:

Atlantic City, Indianapolis, Hot Springs, Va.; Halifax.

The Council recommends an appropriation of two hundred fifty dollars (\$250), or as much thereof as may be necessary, for the use of the editors of the AMERICAN JOURNAL OF INSANITY.

The Council recommends the following-named gentlemen for membership in the Association, election to take place to-morrow morning:

For active membership: Dr. Henry A. Cotton, Trenton, N. J.; Dr. Charles H. Clark, Cleveland, Ohio.

For Associate membership: Dr. Roy E. Mitchell, Middletown, N. Y.

For Honorary membership: Dr. Shepherd I. Franz, Washington, D. C.

Respectfully submitted,

CHAS. W. PILGRIM, *Secretary*.

DR. PILGRIM.—In connection with the question of the place of meeting, I would say that this morning, after the meeting of the Council had taken place, I received the following telegram through Dr. Elmer E. Stone, of Napa, California. This matter was not considered by the Council, but it seems proper to present it at this time. The telegram follows:

SACRAMENTO, CAL., May 13, 1908.

DR. ELMER E. STONE,

Care Dr. C. W. Pilgrim, Secretary American Medico-Psychological Association, Cincinnati, Ohio.

The Governor joins with the State hospitals in inviting the Association to meet in California in nineteen hundred and ten.

(Signed)

F. W. HATCH,

President State Commission in Lunacy.

DR. BRUSH.—I move that the report of the Council be accepted and adopted.

Which motion was duly seconded.

THE PRESIDENT.—I would say, before putting that motion, that the Council would like a little expression of opinion about places of meeting. Four places are mentioned in the report, and before taking final action the Council would like to get an expression of opinion from members. If you are not quite ready to consider the matter, we can defer that part of the report.

DR. BRUSH.—Personally, I believe that the better meetings of the Association are held when the members meet at some central point. When we go to the extreme East, South, or West, it necessarily means that many members of the Association cannot attend, whereas, if we meet in some central point, the distance of travel for the different members of the Association is in some measure equalized and we get a larger meeting and greater interest.

I appreciate the desire for a meeting in California, and that our friends in Halifax want us to meet there, but considering the greatest good to the greatest number, it seems to me that a central point is by far the better place of meeting.

THE PRESIDENT.—I would say in this connection that the Council have a little preference in their own minds, and they merely thought they would like to get some definite and explicit statement of opinion from the members. The Council have a leaning toward Atlantic City, as a central point, a cool place, a place with ample hotel accommodations, and a situation without too many counter attractions and distractions.

DR. BRUSH.—May I amend my motion, in view of the subsequent remarks of the Chair? I move that the report of the Council be accepted, and its preference for Atlantic City be confirmed.

Which motion as amended unanimously prevailed.

DR. WHITE.—Mr. President, I think that we ought to give an expression of thanks to the California delegation who have invited us to meet there in 1910, and I move that the Secretary be authorized and directed to write to Dr. Stone, of Napa, California, stating that it will be impossible for us to meet in California in 1910 on account of our affiliation with the Congress of American Physicians and Surgeons which meets in Washington that year, and expressing the thanks of the Association for their very cordial invitation.

Which motion was duly seconded and unanimously prevailed.

DR. WHITE.—You have heard the report of the Council with reference to the consideration that was given as to the publication of the Transactions and the AMERICAN JOURNAL OF INSANITY. In connection with the

consideration to be given to that subject, it was thought that perhaps something could be gained by doing away with the classification we now have of associate membership, and making all members, except those described as "honorary" and "corresponding," active members, charging them the regular dues of active members, and providing the Transactions are done away with, giving them the AMERICAN JOURNAL OF INSANITY as a part of their subscription.

Those who are now associate members pay two dollars a year and get practically nothing excepting a copy of the Transactions a year after all the papers have been read and many of them forgotten, and they have no voice whatever in the affairs of the Association.

That matter was considered sufficiently important to introduce in the form of a proposed amendment to the constitution and by-laws, which I now submit in writing to come up for consideration next year, so that in case the change is thought desirable, it can be made without delay. The amendment follows:

That the second paragraph of Article V shall be amended to read as follows:

"Every candidate for admission to the Association hereafter as an active member shall be proposed to the Council, in writing, in an application addressed to the President, at any annual meeting preceding the one at which the election is held. Honorary, or corresponding members shall be proposed to the Council, in writing, in an application addressed to the President, at least two months prior to the meeting of the Association. Every application of whatever class must include a statement of the candidate's name and residence, professional qualifications, and any appointments then or formerly held, and certifying that he is a fit and proper person for membership. In the case of a candidate for active membership, the application shall be signed by three active members of the Association; and by six active members for the proposal of an honorary or corresponding member. The names of all candidates approved by a majority vote of members of the Council present at its annual meeting shall be presented on a written or printed ballot to the Association at its concurrent annual meeting, at least one session previous to that at which the election is made, which shall be by ballot at a regular session, and require a majority vote of the members present. Physicians who, by their professional work or published writings, have shown a special interest in the care and welfare of the insane are eligible to active membership."

Article III of the constitution shall be amended to read as follows:

"There shall be three classes of members: (1) Active members, who shall be physicians, resident in the United States and British America, especially interested in the treatment of insanity; (2) Honorary members; and (3) Corresponding members."

THE PRESIDENT.—Gentlemen, you have Dr. White's statement as to the discussion which was had last evening relative to the amendment of the constitution and the abolishing of the class of associate members, making

every one active members with the larger fee and the sending of the *AMERICAN JOURNAL OF INSANITY* to all members free of charge. Of course the amendment will have to wait over until another year. The Chair would be pleased to hear any comments or suggestions as to these proposed changes.

DR. HILL.—The suggestion presented I think a very good one, that there should be only active, honorary, and corresponding members.

In regard to the publication of the transactions, I think we ought to consider that carefully. While it would be a matter of economy, probably, to publish the *AMERICAN JOURNAL OF INSANITY* only, it is important to think over the matter. I myself admit that it would be with a great deal of reluctance that I would be willing to relinquish the old annual volume of proceedings. It is easy to turn to a volume of the proceedings, pick out some of the excellent papers, or some obituary notice of a deceased member, and read it. If the proceedings are loose with the pages of the *AMERICAN JOURNAL OF INSANITY*, it would be much more difficult to find. It would not be in such a condensed form. But why should we economize when we are every year piling up an increased bank account? I think we are like the National Government—so much revenue we cannot spend it. I will not say that I am opposed to the matter, but personally I would like to hear a discussion before I would vote to do away with the old Transactions.

DR. BRUSH.—I do not know that the proposed amendment to the constitution can properly be discussed at this time. If it is in order, the Chair can so decide.

THE PRESIDENT.—My purpose in bringing the matter up was not for debate, but rather for an expression of opinion, so that the members of the Association might have a clear understanding in their own minds of the proposed change, which is of course a sweeping one, and though we do not take any action until a year from now, a few words may make the matter clear in the minds of the members of the Association, so that we could be thinking it over for the ensuing year. The change is a broad one, and I think we should not make it unless we are fully prepared. I thought perhaps a few words at this time might throw a little light on the reasons for making this change. I should be pleased to hear from Dr. Brush, as representing the *AMERICAN JOURNAL OF INSANITY*.

DR. BRUSH.—The editorial board, in reporting as it did yesterday morning, recommended that the volume of Transactions be discontinued, and that the proceedings and papers read be published solely in the *AMERICAN JOURNAL OF INSANITY*, voiced not only their own sentiments, but those of a large number of members of the Association. It is not a matter without precedent; it is not a matter which is difficult to perform; it is a matter which is entirely in the line of economy. If you want to spend your money—you have not a very large surplus—I believe in doing it in a way which will advance the honor and reputation of the Association, rather than wasting it in printing useless volumes of Transactions. In the July

number of the AMERICAN JOURNAL OF INSANITY, the stenographic report of the proceedings, the President's address, and one or two other papers always appear. The other papers appear in their order, so far as possible. We are sometimes handicapped by the fact that the members do not send their papers in; sometimes by the fact that when they do send papers in, they do not send proof back. The Journal of Mental Science, the organ of the British Medico-Psychological Association, is published quarterly. It contains all the proceedings, not only of the Association, but of the branches—that body has district branches—and goes to every member of the Association, not only active, but honorary, free of charge. The dues are a certain amount and they are sufficient to pay for the running expenses of the Association and the printing and publishing of the journal, and its distribution to every member of the Association.

A large number of you are members of the American Medical Association. You know you get the journal of the Association, which contains all papers and discussions, and in addition other papers that are not read to the Association.

Dr. Hill makes the point that it is an easy thing to put your hand on the library shelf and pull out the volume of Transactions and read a paper published therein. It is about as easy, although, of course, the volume of the JOURNAL is a little more bulky, to read the same paper published therein. I do not quite see the force of the point the doctor makes. The suggestion was made in the interests of the Association, to give every member of the Association an opportunity to read the Journal, and also in the interests of economy. It costs you now something over twelve hundred dollars a year to publish the volume of Transactions—almost as much as it costs us to publish the AMERICAN JOURNAL OF INSANITY; that twelve hundred dollars, added to the increased amount of dues, would permit the publication of the JOURNAL OF INSANITY and its distribution to all members of the Association gratis. The increased bulk of the JOURNAL OF INSANITY by reason of publishing all the papers and discussions would necessitate perhaps a little more frequent publication, probably every other month, which could be very easily done.

THE PRESIDENT.—Possibly this matter has been sufficiently discussed so that the purpose of the change is understood, and we will proceed to the further business of the morning. Dr. Langdon will make an announcement.

DR. LANGDON.—The Local Committee has received from the management of the Cincinnati Sanitarium a very cordial invitation to be extended to you to visit that institution to-day at twelve, noon. Trolley cars will leave the Government Square at that hour promptly. Luncheon will be served at one, or very shortly after, and the afternoon session of the Association will be held at the Sanitarium. The cars will return at 5.30. In order that I may secure enough transportation, I would like to ask that all the members of the Association who expect to visit the Sanitarium and attend the meeting there will kindly rise, so that we can see the number requiring transportation. I would also say that if anyone who did not rise

changes his mind, he will be entirely welcome, with his friends and guests. There will be no difficulty in getting there, as the cars run every seven or eight minutes.

THE PRESIDENT.—We now come to the election of Drs. Ricksher and Carroll to associate membership, as recommended in the report of the Council yesterday.

On motion, the Secretary was authorized and directed to cast the ballot of the Association for these gentlemen.

THE PRESIDENT.—The ballot has been cast and the gentlemen named are elected.

The President has been requested by the Council to appoint a delegate and alternate from this Association on the Executive Committee of the Congress of American Physicians and Surgeons. The Chair will appoint as delegate, Dr. Smith Ely Jelliffe, of New York City, and as alternate, Dr. George T. Tuttle, of Waverley, Massachusetts.

The Chair has also been requested to appoint members to serve on a committee to take up the question of nomenclature of mental diseases at the approaching session of the American Medical Association. The Chair appoints on that committee Dr. Adolf Meyer, of New York City, Chairman; Dr. Henry M. Hurd, of Baltimore; and Dr. C. B. Burr, of Flint, Michigan.

DR. WHITE.—I have here a bill which has been introduced in the House of Representatives of the United States. It is very short and I will read it:

60th Congress, 1st Session, H. R. 13,079. (Report No. 957.)

IN THE HOUSE OF REPRESENTATIVES.

January 10, 1908.

Mr. Bennet, of New York, introduced the following bill; which was referred to the Committee on Immigration and Naturalization and ordered to be printed.

February 15, 1908.

Referred to the House Calendar and ordered to be printed.

A BILL

To amend section twenty-one of the immigration law.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That Section Twenty-one of the Act entitled "An Act to regulate the immigration of aliens into the United States," approved February twentieth, nineteen hundred and seven, is hereby amended by adding at the end thereof the following:

"Provided further, That any alien who is now under sentence because of conviction in this country of a felony, or who may be hereafter convicted of a felony, shall, at the expiration of his sentence, be taken into custody and returned to the country whence he came in the manner provided by section twenty of this Act."

SEC. 2. That section twenty-one of the said Act, as so amended, is hereby reenacted.

The Committee on Immigration and Naturalization reported as follows:

"The bill speaks for itself. It has the approval of every member of the Immigration Commission, of the Secretary of Commerce and Labor, and of the Commissioner-General of Immigration. The machinery to carry it into effect is already provided in the immigration law. The alien criminal is simply added to the classes of those who can be deported."

It would seem that this is a proper matter for the Association to express its opinion upon. I have not given the bill very much thought, but I do not see how there can be anything but approval, and for the purpose of getting a discussion, I move that the President appoint a committee of three with power to do whatever seems to them wise and proper to secure the passage of this bill.

Which motion was duly seconded.

THE PRESIDENT.—This matter is open for discussion, and any action you may choose to take. It seems to the President that this is an important matter and in line with the thought expressed last night by Dr. White that this Association should make itself felt in public matters of this kind concerning the welfare and interests of the country, particularly along the line of subjects in which we are especially interested. It seems to me that Dr. White's motion is an important one and worthy of consideration by this Association. I believe we should make ourselves felt in these great public issues which are now pressing upon the country, particularly with reference to the alien immigration, and that we should take some definite action whenever such opportunity presents itself. It seems to me that here is just one of the occasions where a strong word from our Association to the National Congress might have some influence. I am not acquainted with the representative from New York who introduced this measure, but he evidently was strongly supported by the Committee on Immigration to which his bill was referred.

I understand that the Congress is not likely to take it up for immediate action at this session, but I think the gentleman from New York should be sustained, and I hope that Dr. White's motion may receive favorable consideration at your hands.

Dr. White's motion was put to vote and the Chair announced that it had carried.

THE PRESIDENT.—The Chair will appoint on that committee Dr. William L. Russell, of Poughkeepsie, New York, Chairman; Dr. William A. White, Washington, D. C.; and Dr. Owen Copp, Boston, Massachusetts.

DR. BRUSH.—Last year a committee was appointed, of which Dr. Stedman, I believe, was chairman, in reference to popular lectures on insanity to be delivered by some person selected by the Association at our meeting. I would like to inquire if any progress has been made in the matter.

There was another matter referred to at the meeting last year, and about which I have talked with various members since—that is an effort to make our discussions of papers more valuable. They now largely partake of mutual admiration society proceedings rather than real discussions of papers. We get up and say how delighted we are with the paper, etc., but really the discussion does not amount to very much. It arises from the fact that doctors, as a rule, are not good speakers. Very few of us are teachers and very few are accustomed to speaking without some little preparation. A man comes to the meeting of the Association with the title of a paper before him, with no knowledge of how the writer is going to deal with the subject. As an example, take Dr. Southard's paper on "Insanities in the Sixth and Seventh Decades." Who knew how he was going to treat the subject? I simply speak of it as an illustrative title.

We have no opportunity of preparing to discuss a paper which we might want to say something about, and which would add to the interest of the meetings. In other societies the matter is arranged by requiring members to hand to the Secretary to have distributed some weeks before the meeting a synopsis of that paper. If that were done in this Association, I venture to say the discussions would be of greater value to the members and give them a much wider field of usefulness.

I move that the Program Committee for the ensuing year be instructed to notify persons who propose to present papers, or who are requested to prepare papers, that they must have in the committee's hands an abstract of the paper within a certain definite time limit, to be arranged by the Secretary, for printing, and extensive enough to cover in type a sheet of note paper, which shall be printed and distributed to each member of the Association at least one month before the date of the annual meeting.

Which motion was duly seconded and the Chair declared that it had been carried.

The following paper was read:

"Tuberculosis in Hospitals for the Insane," by Richard H. Hutchings, M. D., Ogdensburg, N. Y. Discussed by Drs. Hill, Hutchings, H. M. Hurd, Meyer, Page, Miller, Hitchcock, and Hawke.

THE PRESIDENT.—I will now declare a recess until 2.30 this afternoon, when we will meet at the Cincinnati Sanitarium, College Hill, for the afternoon session.

AFTERNOON SESSION.

At the Cincinnati Sanitarium.

THE PRESIDENT.—The Association will please come to order. It has been suggested that as the time is limited and we have much to do, that we have the old time limit rule enforced of twenty minutes for reading a paper and five minutes for each discussion.

The following papers were read :

"The Need of Reform in Expert Testimony," by Walter Channing, M. D., Brookline, Mass. (By title.)

"The Imbecile with Criminal Instincts," by Walter E. Fernald, M. D., Waverley, Mass. (By title.)

"Imbecile, Criminal, or Both?" by Charles W. Hitchcock, M. D., Detroit, Mich. Discussed by Drs. Norbury, Meyer, White, Hill, Bancroft, and Dr. Hitchcock in closing.

"Traumatic General Paresis, Especially in its Medico-Legal Bearings," by E. Phillippe Chagnon, M. D., Montreal, Quebec. (By title.)

"The Diagnosis of Psychic Epilepsy and Allied Hysterical States in their Medico-Legal Relations, with Illustrative Cases," by George Villeneuve, M. D., Longue Pointe, Quebec. (By title.)

"Traumatic Amnesia—Two Cases of Medico-Legal Interest," by W. W. Richardson, M. D., Norristown, Pa. Discussed by Drs. S. Brown, Perry, and Richardson in closing.

"A Case of Central Neuritis with Autopsy," by Henry A. Cotton, M. D., Trenton, N. J. Discussed by Drs. Hutchings, A. W. Hurd, and Meyer.

THE PRESIDENT.—I will now declare a recess until 8.30 this evening at the Hotel Sinton.

EVENING SESSION.

THE PRESIDENT.—Dr. Meyer's paper, which was not read this afternoon, was to have been read this evening, but as Dr. Meyer wished to be excused for this evening, we have arranged for his paper to appear the first thing on the program to-morrow morning, and I will therefore call upon the regular reader for the evening, Dr. Albert Warren Ferris, of New York, who will read his paper on "Italian Immigration and Insanity."

Discussed by Dr. Wentworth, Dr. Ferris, Dr. H. M. Hurd, and Dr. Bancroft.

"Past History of Some Insane Patients Deported," by Sidney D. Wilgus, M. D., N. Y. (By title.)

"The Federal Control of Immigration," by Thomas W. Salmon, M. D., United States Public Health and Marine Hospital Service. (By title.)

THE PRESIDENT.—The Council will hold a meeting in the Council Room immediately after this meeting adjourns.

I have been asked to announce that a special car will leave the hotel at 3 o'clock to-morrow afternoon for a trip to the city waterworks. Everybody, and especially the ladies, is cordially invited to take the trip, which has been arranged by the courtesy and with the compliments of the John Van Range Company, of Cincinnati.

On motion the meeting adjourned.

FRIDAY, MAY 15, 10.00 A. M.

THE PRESIDENT.—The first order is the report of the Council, which will be read by the Secretary.

REPORT OF THE COUNCIL OF THE AMERICAN MEDICO-PSYCHOLOGICAL
ASSOCIATION.

CINCINNATI, OHIO, May 15, 1908.

The Council has considered the following application for active membership. In accordance with the constitution, it will lie over for final consideration until next year:

D. J. McCarthy, M.D., Philadelphia, Pa.; George R. Love, M.D., Toledo, Ohio.

The Council has decided on Atlantic City as the place for the 1909 meeting, the time to be left to the incoming President and the Local Committee of Arrangements. It is recommended that it be either the week before, or the week after, the meeting of the American Medical Association, provided that body meets in the East next year.

The Council has fixed the dues for the ensuing year at the usual rate, namely, five dollars for active members, and two dollars for associate members.

The Council has authorized the Secretary to publish the Transactions of this meeting.

The Council has passed the following resolution:

Resolved, That in order to facilitate the work of getting out the Transactions, the Secretary be authorized to send a circular letter to each member presenting a paper, or taking part in the discussions, establishing a reasonable time limit within which such paper or discussion must be forwarded to the Secretary for publication to insure its insertion in the Transactions. The same provision shall apply to proof sheets sent for correction. The Secretary shall send such notice by registered mail to insure that it does not miscarry.

The Council has authorized and directed the incoming President to appoint the Local Committee of Arrangements and the Program Committee for the next annual meeting.

Respectfully submitted,

(Signed)

CHAS. W. PILGRIM,
Secretary.

On motion the report of the Council was accepted and adopted.

THE PRESIDENT.—We have proposed for election this morning the following named physicians, for active membership:

Henry A. Cotton, M.D., Trenton, N. J.; Charles M. Clark, M. D., Cleveland, Ohio.

For associate membership: Roy E. Mitchell, M. D., Middletown, N. Y.

On motion the Secretary was authorized and directed to cast the ballot of the Association electing these physicians to membership in the Association.

THE PRESIDENT.—The ballot has been cast and the members are duly elected. We will now proceed to the reading of papers:

The following papers were read:

"The Role of the Mental Facts in Psychiatry," by Adolf Meyer, M. D., New York, N. Y. Discussed by Drs. Brush, Blumer, Norbury, Beebe, Bancroft, De Jarnette, Meyer, and Blumer in closing.

"Involuntary Laughing and Weeping Due to Organic Disease of the Brain, with some Discussion of the Cerebral Mechanism of Emotional Expression," by Charles K. Mills, M. D., Philadelphia, Pa. (By title.)

"Central Neuritis," by E. M. Somers, M. D., Ogdensburg, N. Y. (By title.)

"The Ganser Symptom and Symptom-Complex," by Theodore I. Townsend, M. D., Dannemora, N. Y. (By title.)

"Alcoholic Psychoses in Hospitals for the Insane," by J. M. Keniston, M. D., Middletown, Conn. (By title.)

"A Method of Craniometry," by H. A. Tomlinson, M. D., St. Peter, Minn. (By title.)

"Heredity," by James T. Searcy, M. D., Tuscaloosa, Ala. Discussed by Drs. Hill and Bancroft.

"Hydrotherapy in the Treatment of the Insane," by George Stockton, M. D., Columbus, Ohio. Discussed by Drs. Hill, Bancroft, and Dr. Stockton in closing.

"Electricity in the Treatment of Mental Disease," by W. M. Knowlton, M. D., Brookline, Mass. (By title.)

"Epilepsy," by Everett Flood, M. D., Palmer, Mass. (By title.)

"A Study of Some Phases of Family Psychoses," by John Gerald Fitzgerald, M. D., Toronto, Ontario. (By title.)

"Two Cases of Hypothyroidea," by Thomas P. Prout, M. D., New York, N. Y. Discussed by Drs. Hill and Prout.

DR. KILBOURNE.—The committee appointed to report some plan for a memorial for deceased members would respectfully submit the following report:

That a standing committee be appointed, whose duty it shall be to prepare a bronze tablet to be suitably placed at the institution with which the deceased member was most closely connected, stating his official connection with it and this Association. That such institution be requested to accept and pay for said tablet and place it in a suitable place in the institution. That if the institution declines to pay for it, but will accept and place it in position, then this Association at its own expense will furnish the tablet inscribed as suggested above; and that the committee to be appointed ascertain the cost to the Association of carrying out these recommendations, and report to the next annual meeting.

DR. BLUMER.—While perhaps there is something to be said in favor of the suggestion made by the committee, I should be very sorry to see its report adopted. It seems to me that he would be a very poor member of this Association who, when deceased, would not have done to him by his own hospital the honor which is provided for by Dr. Kilbourne's resolution. Many an institution, I think, would regard it as an unwarranted interference with its own privilege in the matter. Many would prefer, I have no doubt, to prepare memorial tablets of their own, and then there is another thing to be borne in mind, viz., that memorial tablets cost considerable money. Butler Hospital has quite a number of them which its trustees have been very eager to provide for deceased superintendents and trustees, and the cost is usually about one hundred dollars. Moreover, it would embarrass an institution to have forced upon it a memorial tablet which might not be entirely suitable to it, or be otherwise objectionable.

I move that the report be laid on the table.

DR. HILL.—I will second the motion. The acceptance of this report continues this committee. There are of course good things to be said about it, but there is also another side of the question which has already been illustrated.

DR. HUTCHINGS.—I arose to second Dr. Blumer's motion—I did not understand that Dr. Hill had done so. I think his contention is right. The Association would assume a large responsibility in this matter and the task would in a short time become unwieldy; we have members who are scarcely known to the association, who rarely attend a meeting, or who have been superintendents but a short time. This measure appears to be mandatory and, on the whole, I think it is a matter that had much better be left alone.

DR. PAGE.—I wish to say that I favor Dr. Blumer's motion. I have been connected officially with three insane asylums and I can picture to my mind the difficulties which would come up before any committee that had to consider this question in connection with the present and past officials of these various institutions. Besides the labor involved to do jus-

tice to the past members, at least, would be considerable, and the expense attending it would be more than I think this Association should be called on to assume.

THE PRESIDENT.—If the Chair may be pardoned for speaking out of order, he wishes to express his hearty agreement with Dr. Blumer's motion. It seems to him that if the members of this Association do not possess the qualifications to stand on their own record and pass down to posterity without the enforced gift of a bronze tablet from the Association—then the whole matter had better be dropped. Bronze tablets, as has been said here, cost money. The whole project seems to savor of self-glorification. Institutions are not ungrateful and their trustees are always glad to recognize the valuable services of their superintendents. The routine presentation of memorial tablets to hospitals by this Association would not only be costly, but embarrassing as well. The Chair hopes that Dr. Blumer's motion to table the resolution will prevail.

Dr. Blumer's motion to lay the report on the table was put to vote and the President declared that it prevailed.

THE PRESIDENT.—The next in order is the report of the Committee on Resolutions.

DR. BLUMER.—The Committee on Resolutions begs leave to submit the following report:

At the close of one of the most successful meetings in the history of the American Medico-Psychological Association the members desire to place upon record their appreciation of the many public and private courtesies extended to them by the citizens of Cincinnati during the past four days. They would especially thank His Honor the Mayor for his cordial welcome, the President of the Ohio Medical Society, Dr. Bonifield, for his address in behalf of the medical profession of the State, and Dr. C. A. L. Reed in behalf of the local profession; the Hon. William B. Melish, Chairman of the Executive Committee of the Cincinnati League; Dr. F. W. Langdon, the acting chairman of the Committee of Arrangements, for his untiring exertions and efficient arrangements for their comfort; the Hon. Judson Harmon for his suggestive annual address; Dr. and Mrs. Harmon for a most interesting visit to Longview with its graceful and charming entertainment; Mr. and Mrs. John C. Sheets for their delightful hospitality at the Cincinnati Sanitarium; the Queen City Club; the officers of the American Laundry Machinery Company; the officers of the John Van Range Company; the Zoological Garden; the Art Museum; the Rookwood Pottery; the Cincinnati Water Works Company; the Hotel Sinton; and finally the newspapers of the city for excellent reports of the proceedings—to all of these the heartfelt thanks of the Association are tendered.

(Signed)

HENRY M. HURD,
G. ALDER BLUMER,
In behalf of the Committee.

At the same time I desire to present, not as a member of the Committee on Resolutions, but individually, this resolution:

Resolved, That while this Association feels genuine regret that, on account of illness, Dr. F. W. Harmon has been unable to take part in a meeting, the success of which has been due in large measure to his effective preliminary work as chairman of its committee of arrangements, it learns with great pleasure that his health is steadily improving, and wishes for him uninterrupted convalescence and a long and happy life in which he may increase the fame of his strenuous performances as medical superintendent of Longview Hospital.

The report of the committee on resolutions, and Dr. Blumer's resolution, were unanimously adopted.

DR. HILL.—I would suggest that copies of these reports be given to Dr. Langdon, Dr. Harmon, and the press, and that the secretary of the committee be requested to forward copies to the persons mentioned therein, and that they be spread on the minutes of this Association.

THE PRESIDENT.—You have heard Dr. Hill's suggestion, and if there is no objection, it will be so ordered.

The retiring President, in leaving the Chair, wishes to thank the Association cordially for the very great honor it has conferred upon him, and also wishes to thank the members for their very kind and courteous treatment while holding his official position. You have not placed upon me any embarrassing parliamentary questions to settle, and I feel that you have accorded me great assistance, particularly our Secretary.

I now have a very pleasant duty to perform—that of introducing the President-Elect. I will call upon Dr. Hill and Dr. Searcy to escort Dr. Kilbourne to the Chair.

It is a pleasure to present Dr. Kilbourne to you on this occasion. His faithful, honest, quiet work in the cause of our specialty is sufficient ground for the great honor which you have conferred upon him. (Applause.)

THE PRESIDENT-ELECT.—*Mr. President and Members of the Association*: Words fail to express my appreciation of this honor which you have seen fit to confer upon me. I thank you and I assure you that I will do the best I can in your service.

I would like to announce the appointment of the following committees:

For the local committee of arrangements for the next meeting at Atlantic City:

Dr. B. D. Evans, Chairman, Morris Plains, N. J.; Dr. Chas. G. Hill, Baltimore, Md.; Dr. W. W. Hawke, Philadelphia, Pa.; Dr. W. H. Hancker, Farnhurst, Del.

For the Program Committee for the next annual meeting:

Dr. H. A. Tomlinson, Chairman, St. Peter, Minn.; Dr. Edward Ryan, Kingston, Ontario; Dr. J. M. Buchanan, Meridian, Miss.; Dr. William Mabon, New York, N. Y.; Dr. Hubert Work, Pueblo, Colo.

Is there any other business to come before the Association?

DR. HILL.—I am sure I voice the sentiments of everyone here when I offer a vote of thanks to our retiring President. During his administration of this very pleasant and successful session we have had, I have heard nothing but words of commendation for the manner in which he has conducted our meetings, and in offering this resolution, I move a vote of thanks for his conduct of all the meetings during his administration, and offer him on the part of the Association our very best wishes for his future prosperity, happiness, health, and wealth.

Carried unanimously by rising vote.

THE PRESIDENT.—Gentlemen, I appreciate very much your kind wishes and expression of confidence and good will.

THE PRESIDENT-ELECT.—I now declare this meeting adjourned to meet next year at Atlantic City, New Jersey, at a time to be fixed later by the local committee of arrangements and the President, and of which all shall receive due notice.

CHAS. W. PILGRIM,
Secretary

PRESIDENTIAL ADDRESS:

HOPEFUL AND DISCOURAGING ASPECTS OF THE PSYCHIATRIC OUTLOOK.

By CHARLES P. BANCROFT, M.D.,

Medical Superintendent N. H. State Hospital, Concord, N. H.

It is to be hoped that your president may be pardoned for selecting as a topic for the annual address anything suggestive of historical résumé or presumptuous prophecy. Fully cognizant of the great honor that the Association has conferred upon me it is not my desire to reciprocate by submitting a wearisome retrospect, nor a too imaginative prognostication. The occasion has seemed opportune however for a brief consideration of the probable trend of psychiatry viewed from the vantage-ground of present achievement.

On the purely scientific side psychiatry has made during the last few years remarkable progress. The pathologist and the clinician have co-operated most efficiently. The psychopathology of mental diseases has received the most searching scrutiny from trained, skilled observers. This uniformly careful study of every phase of morbid mind has illumined our conception of insanity and allied mental conditions. The underlying disease process is more clearly understood than ever before.

The old idea of numerous specific disease-entities to which this or that name was attached has given place to another idea, that of a few definite disease-processes with varying symptoms disappearing and reappearing in the same person. At one time depression, at another time elation, again confusion, and still again stupor occurs, not only in different individuals but in the same person at different times in his disease. The changes are rung on these and other symptoms in the same and in different types of insanity so that a classification by symptoms alone has become meaningless. We have learned to avoid making a diagnosis on any one of these superficial phenomena, for such symptomatology may

be found in almost any variety of insanity in an adolescent as well as a senile form, in a toxic functional psychosis, a systematized delusional form or an organic brain disease like paresis. We have made a distinct advance, founded on careful scientific research, when we disregard all these kaleidoscopic symptoms and dig down deep into the morbid process underlying these outward expressions and endeavor to ascertain just what is occurring in the mind itself and its organ, the brain.

Psychiatry is no longer a circumscribed field. Neurology, psychology and sociology are now closely related with psychiatry. As mind is the latest and most perfect expression of evolution in the universe, so the study of its morbid variations must necessarily concern every part of the nervous system through whose functioning its present evolutionary attainment has been reached. As mind is modified by environment, so social conditions become identified with and oftentimes responsible for its morbid manifestation. The psychiatrist cannot afford to neglect the science of sociology in his study of the cause, development and treatment of mental diseases. Psychology is assuming an increasingly important position in psychiatry, because, dealing as it does with mental processes, it enables the psychiatrist to apply the principles of normal psychic laws to the operations of diseased mind and thereby form a clearer conception of the complex mental phenomena of the insane mind that underlie abnormal conduct.

While scientific psychiatry has made such creditable advance it is interesting to note that the welfare of the patient has not been neglected. Hospital management and methods have been receiving the most careful study for the past twenty-five years and many important modifications have resulted that place the equipment of the hospital for the insane on the same high plane as that of the general hospital. The old block construction has given place to the detached pavilion plan. The acute psychopathic ward, or wards, the reception hospital, the convalescent villa, the farm colony, the detached groups of buildings for better segregation and care of the different types of insanity are an expression of the better understanding of the disease and its requirements.

The movement toward the better training of nurses as witnessed in the very general establishment of training-schools for nurses in

hospitals for the insane, with the not infrequent attempts at affiliation with the general hospitals, thereby permitting mutual interchange of nurses; the participation of nurses in hospitals for the insane in district nursing, thereby stimulating an interest in the nurses themselves and eliminating the old idea that a nurse in this specialty is separated from the general nursing profession outside these special hospitals; these and similar steps in the better training of nurses for the work in the hospital for the insane are distinct advances and emphasize the growing conception in the popular mind of the solidarity of all diseases, of which insanity is only one but a very important part.

The establishment of psychopathic wards and pavilions in connection with general hospitals in the large metropolitan centers, as in Germany, France and Italy abroad, and in New York at Bellevue, and Pavilion F at Albany, is another evidence of the tendency toward the realization of the hospital treatment of the disease. But especially noteworthy is the connection of psychopathic wards with general hospitals in cities that contain one or more medical schools, because of the facility such association gives for the better clinical instruction of the medical student in the acute psychoses. Every attempt that has been made to break down the barrier in the mind of the medical student that separates insanity from all other diseases, every attempt that is made to familiarize the student with the clinical features of mental alienation in its earlier stages, is sure to be helpful in the future. For every medical student thus trained is better able to detect in his practice during later years the early development of insanity, and presumably his advice and management of such cases will be of direct advantage to any community in which he may be located. Unquestionably the interest and attention of the student will be more readily enlisted if he can in connection with his general hospital clinic visit the wards for insane patients. Clinical accessibility for the observation of the acute psychoses in special wards of the general hospital is preferable to an infrequent visitation to some remote hospital for the insane in the country. Not only will accessibility render the medical student's visitations more frequent, but he will be enabled to study the psychoses in their early stages—a desideratum not as possible in a large hospital for the insane where patients

are usually received in later stages of the disease after the psychosis is established. Moreover the patient will benefit by an early admission. Not only will treatment at this stage be more effectual but the feelings of the patient and the family will be spared the stigma which, whether fancied or real, is apt to attach to legal certification and compulsory detention in an asylum. Unfortunately the managements of many metropolitan general hospitals in this country have been averse to the addition of psychopathic wards to their equipment. But the movement has been inaugurated and in the no distant future such special wards will, I believe, become a feature of general hospitals in the larger cities, especially in such as contain one or more medical schools.

If psychopathic wards directly connected with general hospitals do not meet with favor, then it is likely that small, independent psychopathic hospitals will be erected in the larger centers near the medical schools. Such a plan is now being advocated by the Boston Society of Psychiatry and Neurology for adoption in the city of Boston.

Whatever method is selected it is very likely that some movement looking toward special psychiatric wards or small independent psychiatric hospitals in the larger cities will meet with popular favor. In the more thinly settled, rural districts the small psychopathic hospital, under the same management but located at a distance from the larger hospital group, will be adopted, as in New York State. These are all problems that each state must work out under its own existing conditions. Our Association should use its influence with legislators in securing public recognition of the desirability of such equipment—varying slightly in different localities, but everywhere having as its intent the early hospital treatment of the acute psychoses. The movement already inaugurated has made good progress and is, I believe, one of the most encouraging and hopeful features in the psychiatric outlook.

While the scientific study of insanity has met with such signal achievement, and our methods of classification and domiciliation of the insane have attained such a gratifying standard, what shall we say of the results of treatment based on a better understanding of the disease and an equipment that is equal to that of the general hospital? Logically we ought to anticipate much. Actually, the

results of improved methods of treatment are far from gratifying. While we have ameliorated the physical comfort of the patient, have prolonged his life and have accomplished much for him from the purely humanitarian point of view, we have made little or no progress in establishing a higher recovery rate. A low recovery percentage in the face of markedly improved methods of care and in spite of a vast array of therapeutic measures that numerically exceed anything that our predecessors had dreamed is a distinctly discouraging feature of the psychiatric outlook.

One has but to read the psychiatric literature of this and other countries for the past twenty-five years to be convinced that a low recovery rate does not depend on paucity of therapeutic measures. Drugs of various kinds, glandular extracts, electricity, hydrotherapy, open-air treatment and, last of all, serum therapy and psychotherapeutics have been and are being tried with but little increase in the recovery rate. The advocate of every new therapeutic measure speaks with the enthusiasm born of an ardent and commendable faith but further trial by the profession fails to sustain the hopes of its originator. The latest and most sensational of these therapies is the serum treatment of paresis based on its bacterial origin. The time has not yet arrived when this theory of the disease can be accepted as scientifically proved, nor when a positively increased recovery rate by the antitoxin treatment can be said to be definitely established. Clinical observation covering a longer period and including a larger number of cases and further bacteriological investigation are necessary. Meanwhile the subject will receive the persistent study of the bacteriologist until the serum treatment of general paralysis will be demonstrated to be a failure or a most dramatic success. Many of these therapies have been exploited as though they were new; but as a matter of fact they are old remedies that have been tried, discarded and apparently forgotten only to be revived under slightly modified technique. Hydrotherapy and massage, for instance, are old measures. The prolonged bath with cold affusions to the head was enthusiastically advocated by Dr. Casimir Pinel in 1856 for the treatment of the acute psychoses, but seems to have been neglected until recently. The essential difference between Pinel's adaptation of the long-continued bath and the modern method lies chiefly in

the more elaborate and costly apparatus devised by the enterprising manufacturers of high-grade plumbing goods. The cost of giving the treatment has been materially increased; the recovery rate remains unchanged. So persistently stationary does this recovery rate remain in spite of new and improved methods of treatment that one almost inclines to the opinion that the case possessing an inherent recuperative tendency recovers no matter what treatment is used, and that the essentially dementing psychosis, which forms the largest number of all admissions, fails to respond to any therapeutic measure. One almost feels forced to the conclusion that the simple, common-sense remedies such as nutritive diet, fresh air, sunlight, mental and moral suggestion, rest or exercise as may be indicated, are as efficacious as anything that has been advocated, and that the *vis medicatrix naturae* after all seems to be the efficient factor in the restoration to mental health. Probably no royal specific either has or ever will be discovered for the cure of mental disease. I do not wish to be misunderstood. The insane patient is more intelligently and more humanely cared for. He is treated as a sick person. Better housing, nursing and classification have abbreviated the duration of the acute psychosis, have ameliorated the condition of the chronic and incurable cases. Nothing that we have done should be deplored. Our experience and achievement serve a doubly useful purpose, not only giving the patient more perfect care but disclosing more clearly the true character of the underlying disease process, and suggesting a more rational management of the case itself.

A clearer understanding of the etiology of insanity, a more accurate knowledge of its pathology, an enlarged therapeutic experience serve to emphasize the hopelessness of cure in nearly 80 per cent of the insane in our large hospitals. While the present method of classification and care of this large population in pavilion and colony under medical supervision yields the best results in comfort to the patient and safety for the community, we must admit the forbidding etiological element underlying the insane population that crowds our hospitals. The fact that in its very nature insanity is an almost fatalistic outgrowth of conditions over which the physician has no control is in itself most discouraging. And

yet in this most depressing conviction lies the suggestion for a more hopeful procedure.

It is not necessary to retrace the ground covered so thoroughly by Pliny Earle thirty years ago. That sagacious and painstaking psychiatrist long years ago pricked the bubble of our optimism. After a quarter of a century of continuous progress in psychiatric study and therapeutic empiricism we must reread his little monograph—as true to-day as when he wrote it—“lest *we* forget.” When Doctor Earle said: “Very clearly, if insanity is to be diminished, it must be by prevention and not by cure,” he sounded the key-note of one of the most important movements in the psychiatric practice of the future.

To my mind one of the cheering signs on the medical horizon at the present time is the growing emphasis placed upon all enquiries into the causes of disease and the establishment of preventive measures to counteract the operation of such causes. We are not exerting all our energies in trying to treat yellow fever after it is established; we are rather working even more strenuously to control the propagation of the fateful insect that spreads the disease. Preventive medicine may become the medical practice of the future. Campaigns of education may prove as efficient in diminishing the ever increasing percentage of insanity as of other disease. Preventive measures may prove less costly than the erection of expensive hospitals after the insanity is established. The time is near at hand when public or preventive medicine must include mental diseases among those requiring public supervision and popular enlightenment. If alienation once established is such an incurable disease, then society must see to it that the causes that lead to so serious a malady are generally understood and, as far as possible, prevented.

The criticism has been advanced that the inclusion of insanity in any system of public or preventive medicine is impracticable because no exact and definite procedure is possible. The infectious and contagious diseases present an exact etiology, scientifically demonstrable in the laboratory. These diseases are communicable by the transmission from person to person of actual bacteria which have been definitely isolated, or are so inferentially present as to admit of no controversy. Boards of health have there-

fore a clear, positive duty indicated, a definite procedure suggested, so that this department of medicine has been reduced to an exact science. These critics affirm that mental disease presents no such definite contacts with the body public, that the disease being communicable by neither personal contact nor contiguity of residence, there is no occasion for interference of local boards of health. The segregation of the mentally afflicted either for self-protection or treatment or for certain dangerous propensities, homicidal or otherwise, is all that is required and no other public measures looking to the prevention of the disease are necessary.

Such criticism begs the real question at issue. Can insanity be prevented? Has the experience of the past sufficiently illuminated our understanding of the causation of insanity so that any public steps can be taken to prevent its increase? Our knowledge, enriched by the experience of the last one hundred years, ought to offer some hope for the establishment of a rational prophylaxis. I believe that through a wider diffusion of popular information concerning the real nature and evolution of insanity much may be done. While the subject is beset with difficulties I do believe that we have reached a point where something definite can be done. Slowly at first but surely our specialty can, I think, suggest ways and means of enlightening the public mind as to the preventable causes of mental disease that in the not distant future must yield some good results.

Too long have not only the public but even that part of the medical profession not directly interested in the subject remained uninformed on the causation of insanity. There still remains prevalent too much of the old mediæval mysticism concerning the disease. The time has arrived when the medical profession, and especially our portion of it, should advocate persistent enlightenment of the people concerning the genesis of mental disease; when we should impress upon boards of health the importance of observing certain laws of mental hygiene in the school and home; and when finally the general practitioner should become so familiar with the antecedents of insanity that he can use his influence in correcting and diverting evil tendencies which, unchanged, are likely to result in alienation. The field is a large one and calls for the co-operation of the psychologist, the educator and the public-health official.

In the first place our medical students should receive constant clinical instruction in mental diseases, particularly in their incipient stages. For this reason the psychopathic wards connected with the metropolitan general hospitals or the small independent psychopathic hospital for acute cases in the large city offers the best method of giving practical clinical instruction. Almost equally important are popular lectures on the preventable and other causes of insanity given under the auspices of medical schools or local boards of health. Such lectures have been given in New York and Boston and, judging by the attendance, must prove a valuable agency in diffusing a correct knowledge of the cause and development of mental disease. In this education of the laity popular treatises on mental hygiene should prove most helpful. Such a book as Dr. Clouston's *Hygiene of Mind* could with advantage be placed in the hands of every young person and might even be adopted as a text-book in high schools. Certainly the physiology of mind is as deserving of popular consideration as that of digestion, respiration and the circulation.

By a clearer insight into the beginnings of mental disease, gained through the popular lecture and a non-technical literature, society will become so far enlightened that intelligent personal prophylaxis may be anticipated. A knowledge of danger is the surest means of guarding against it. The mariner, having the exact location of treacherous reefs and shoals, will guide his vessel into safe channels. While many will be careless in the face of great dangers, the majority will exercise precaution. Public opinion should no longer regard the mind and its operations a subject interesting only to the alienist and metaphysician. I have faith to believe that when the laws of mental hygiene and the causes of mental disease become matters of common knowledge, society will itself initiate prophylaxis. Just as people, through correct understanding of its cause, are beginning to realize the necessity of personal endeavor in the prevention of tuberculosis, so will individual effort avail much in the prevention of mental disease when a knowledge of its causation becomes more general.

Exactly how public or preventive medicine shall deal with mental disease is too large a subject for detailed consideration at the present time. The most obvious line of attack must be in the

direction of the four great etiological factors of insanity : heredity, alcohol, syphilis and environment. Abstractly considered these four causes are preventable or removable. Practical prevention, however, proves to be a most difficult task. Compulsory legislation may very materially modify faulty environmental conditions but will be of little value in averting the evils following bad heredity, alcohol and syphilis. Professional advice to individuals has thus far accomplished little. Such advice freely sought, given and paid for has been promptly disregarded in the face of passion and sentiment. Man's appetites and feelings undermine his will and judgment, wise counsels are cast to the winds. The marriages of the unfit, alcoholic indulgence and sexual indiscretions are matters of every-day occurrence, and in their wake follow the neuroses and the psychoses to the third and fourth generations. It is evident that campaigns of education must supplant sporadic professional advice. As far as is practicable the causes of mental disease must be made subjects for public enlightenment in the schools, in suitable text-books and in the popular medical lecture course. Through these avenues the physician must take the public into his confidence. When the relationship between insanity and its chief contributory causes is generally and familiarly understood, then an intelligent prophylaxis may begin with the individual and in the home.

While society may not be able to prevent the marriages of the unfit, it can and should prevent the marriages of the feeble-minded. For its own safety the community should, through proper officials, locate all such persons and segregate them in special institutions. Careful medical inspection of jails and prisons should be made and when discovered these individuals, either before commitment or after the expiration of their sentence, should be transferred to the custodial or school department for the feeble-minded. Dr. Fernald's paper on the Imbecile with Criminal Instincts is most suggestive and deserves large circulation in every state. We cannot prevent crime, degeneracy and insanity if this class is allowed to roam at large. And yet how slowly does the public arise to a proper understanding of the necessity of segregating the feeble-minded. Many states are still without proper institutions for this class. In my own state only five years ago the

movement to establish a school for feeble-minded met with the greatest opposition and the custodial department was omitted for fear that the entire enterprise would meet with defeat in the legislature. Such short-sighted policy shows the need there is of popular enlightenment. The outlook is not discouraging, for public sentiment is already slowly changing and the feeling exists that the care of the feeble-minded is not merely a humanitarian movement but is of real economic value to the state. Every such case properly cared for may mean diminished pauperism, crime or future insanity for the community.

While we may be unable to modify hereditary influences through legislative or advisory control of marriage, we can carefully guide the growing mind of the offspring of such unfortunate marriage, and guard it against the evils of a faulty school system. The backward child can be properly classified. The physically weak child need not be crowded beyond his strength. The hygienic and sanitary condition of the schoolroom can be maintained at a proper standard. Medical inspection of the school and the pupils can be enforced. The dangers to the rapidly growing brain and mind during the critical period of puberty and adolescence can be minimized so that the mind of the child not favorably endowed by heredity need not be jeopardized. These are prophylactic measures that will receive constantly increasing recognition just as soon as popular understanding of their importance and their relation to the causation of insanity becomes more general.

Environment plays a prominent part in the etiology of insanity. Many individuals with an unfortunate heredity are able to withstand a mental breakdown by the counteracting beneficial effect of a good home, the surroundings of which are healthful and congenial. In this respect the poor in large cities are unfortunately situated. Living in crowded tenements with diminished air space and unsanitary conditions, there is little wonder than an hereditary handicap is intensified and that mental impairment should appear at the great developmental and involutional crises of life. Here is a large field for the co-operation of the sociological worker and the psychologist. One of the most encouraging movements of the time is the very interesting and helpful work that is being so

enthusiastically carried on in the large centers by workers in the social settlements. Not only is there demand for this activity in the city slums, there is also a large field for similar endeavor in the sparsely settled rural districts. I do not believe that solitude nor the strenuous life of the farm is especially responsible for insanity in the country, but I do believe that in the poorer localities degenerative conditions often exist which demand careful study and the guidance of strong and willing minds. I have noticed in my state, which is largely agricultural, that though numerically more insane come to the hospital from the large cities, as would be expected from the larger population, still the actual ratio of the insane to the population is as large or larger in those townships containing less than one thousand inhabitants. These thinly settled townships are nearly all isolated, and have a poor, unproductive soil. The character of the soil is not the essential causative factor of the insanity. The condition is rather a social one. The rich, productive soils, the fertile farms with good pasture land are all taken up by the active, enterprising, ambitious men; the unproductive lands are left for the less ambitious, the lazy and shiftless men. The cider apple flourishes on these gravelly slopes, and hard-cider intemperance as a cause of brain degeneration is not to be ignored. Degeneracy finds a favorable foothold in these sparsely settled back districts where the inhabitants are satisfied with meagre returns, and where the moral and the environmental conditions are anything but helpful.

Improvement of the environment must play a prominent part in any scheme of organized prophylactic endeavor. While hereditary influences are powerful etiological factors in the appearance of insanity, they can be mitigated and even counteracted by improved environmental conditions. Too much weight must not be placed upon the so-called stigmata of degeneracy. Attention has already been called to the fatalistic tendency of Lombroso's theories. Many a man with asymmetrical features and a poor heredity can be spared mental deterioration by an improved social status, by proper mental and moral hygiene and a generally improved sanitary and hygienic environment. Given a bad heredity and even some of the physical stigmata of degeneracy, society should not abandon prophylaxis. Pessimistic fatalism means

paralysis of endeavor. Such rather forbidding antecedents demand all the more an optimistic attempt at modifying a bad start in life by an amelioration of the environment. Society itself must, as it is already doing so grandly in certain places, initiate a campaign of social betterment, not only in the dark corners of the large city, but in the thinly settled, outlying rural districts. Our specialty should heartily endorse and assist the practical sociologist in his effort to improve social conditions in these localities. Where possible we, ourselves, should take the initiative when deplorable environmental conditions become known to us through hospital commitments. Prompt interference of the local authorities in the home life of those thus unfortunately placed, either by relieving bad sanitary conditions, by proper moral and intellectual training of the children, or even by removing children from such homes if necessary, may mean the prevention of later mental impairment.

There is a growing demand for the closer medical inspection of prisons and jails. Many prisoners are degenerate, not a few are actually insane. At the expiration of their sentences these men are discharged to mingle in the community, and either reappear as criminals or are liable to perpetuate their kind, thus forming new foci of insanity. All such cases should, by a system of careful inspection by alienists while in prison, be recognized and removed to criminal institutions for the insane. There is as urgent need of permanent segregation of these insane and degenerate criminals as there is for temporary segregation of those suffering from contagious diseases. I would plead for the most careful medical study of prisoners, not only from motives of humanity and justice to the prisoner but for the prophylaxis of future insanity and the protection of society.

After-care for those who have recovered from an attack of insanity may be of great value in preventing relapse if not averting incurable mental disease. Although in its inception, enough has been accomplished to demonstrate the value of an intelligently applied system of after-care. The very causes that led to the original attack in a mind not overstrong and possibly predisposed to mental disease are all the more operative after collapse has already occurred. By careful supervision after discharge such a

recovered patient may be prevented from overdoing, may be removed from a depressing or unhealthful environment, and may be so favorably situated that a second attack will never recur, and the individual himself remain a productive member of society.

In this country at least the solution of the immigration problem must play a prominent part in the prophylaxis of insanity. Change of food, climate and native home environment, together with the strenuous life in a new country, all prove a serious stress for those immigrants who are not physically and mentally equipped to meet the new conditions. The immigration laws now in force must prove of the greatest ultimate service in enabling our state officials to detect and remove defective aliens that come to our shores. Those that escape the immigration officers are pretty sure to appear in some institution before three years have elapsed from the time of their landing. Our specialty should be ever on the alert to detect these defective recent arrivals and refer them to the proper authorities for deportation. Unless we, as a nation, exercise the greatest precaution it is easy to foresee how soon a large burden of insanity will be engendered through the scattering far and wide of those whose congenital or other mental handicap should never have permitted emigration from their native land.

Closely related to the immigration problem is the steady increase in the number of criminal aliens that fill our jails and prisons. Crime, degeneracy and insanity are frequently allied. When one considers that out of the thirty thousand foreign-born persons serving sentences for crime about eighteen thousand have never taken out naturalization papers and six thousand speak no English, the necessity for preventing the entry of such persons into this country and for securing their deportation if possible after the expiration of their sentences, becomes self-evident. That such degenerates should furnish the nucleus for future crime and insanity if allowed to roam over the country after release from confinement, is likewise self-evident. It is to be hoped that the proposed national legislation for the deportation of these criminal aliens at the time of their discharge may be realized. I believe that our Association would do well at this present session to memorialize the national Congress as to the importance and necessity of such legislation.

It is evident from this very cursory view that public medicine has a large obligation to fulfill in the prevention of insanity. A low recovery rate in the past emphasizes the necessity for prophylaxis in the future. One of the most encouraging features in the psychiatric outlook is the growing conviction that psychiatry must be included as one important department of public medicine.

The service problem presents another most discouraging feature in the psychiatric outlook. The difficulty of securing good male attendants is increasing every year. Good women nurses are more readily engaged than men because the training-school presents an opportunity for acquiring an honorable and lucrative profession. So many excellent avenues for earning a livelihood are open to men, the care of the insane is to many so distasteful, the wages so low and the hours so long that the securing desirable male attendants is extremely difficult. When to these disadvantages is added the impossibility of a satisfactory home and family life, there is little wonder that good men seek other employment. Relief will not come until an enlightened public intelligence recognizes the responsible and onerous character of the service, and the necessity of such a per capita maintenance rate as will admit of adequate remuneration and privileges attractive to desirable men.

It is to be hoped that the taking of medical expert testimony in cases of insanity will soon be placed upon a higher plane, and put beyond the pale of narrow partisanship. It is most discouraging that the psychiatrist should be forced by circumstances into a position at once unjust to himself and discreditable to the specialty he represents. The dawn of a better day is near. The two great professions most interested already demand a change of method. The adoption of an observation law in some states, by which the doubtful criminal is committed to the state hospital for the purpose of more satisfactory study than is possible in a jail, is a step in the right direction. Instead of a prolonged fight in court with experts arrayed against one another, the suspected criminal is placed in a hospital where his case can be studied under the best possible conditions, and where, if malingering is attempted, it can be positively detected. The success of the observation law wherever it has been adopted is the best argument for its exten-

sion. The very fact that such a law has been successfully established in many states is an evidence of a changed attitude on the part of the legal profession. Justice rather than a spectacular fight is the aim of the observation law, and the expert testimony of the hospital physician assumes the importance and dignity to which it is entitled.

If all causes could be so tried that experts could be impartially consulted and their opinion, untrammelled by any partisan interests, become an unbiased aid to the judge, the jury and counsel, the dignity and self-respect of our specialty before the court and the public would be maintained. Whether this consummation will be attained by the summoning of experts by the court, by their election through mutual consent of counsel on either side, or by the refusal of physicians to appear as partisans in any case, the result will be most welcome. Let us all contribute toward the hastening of the day when the name *expert* will not arouse the contempt of the bench nor the cynical smile of the jury and the public.

In conclusion I merely wish to affirm my own personal belief in a hopeful outlook for the psychiatry of the future. If the results of treatment have been discouraging, our knowledge of the genesis and evolution of insanity is clearer than ever before. If we have learned the impossibility of curing the disease in a large majority of cases, we have also learned the importance and the possibility of preventing the disease itself. We understand the nature of mental disease as never before. We recognize the almost innumerable factors that enter into its causation, and we welcome the affiliation of psychiatry with the allied sciences of psychology, neurology, bacteriology and penology which will enable us to accomplish so much in the way of an intelligent prophylaxis. No longer will the alienist work alone; he will join hands with workers in these allied sciences, and I have faith to believe that ultimately, not in our day perhaps, but in the not distant future, mental diseases will decrease just as the infectious fevers have decreased by removal of their causes.

ANNUAL ADDRESS.

HON. JUDSON HARMON,

Governor of Ohio.

Mr. Chairman, Ladies and Gentlemen: It occurs to me that perhaps what happened last week, to which the Chairman has referred, you may be responsible for. I believe one of the duties of the chief magistrate of Ohio is to act as a sort of commander-in-chief of all the institutions of the State, and the fact that I was chosen by you to address you on this occasion might have been taken by the people of Ohio, at least by the members of my party, as proof that perhaps I knew something of certain subjects with which some of those institutions deal. But I fear that if that idea was entertained my party may be found by you to have been laboring under a delusion. I met one of our distinguished medical gentlemen to-day, who asked me what I was going to talk about, and when I told him I was not sure I knew, he suggested that I might take for my subject, "The effect of politics on the mental faculties." But I told him that if my audience had the keenness of perception they are credited with I would not have to say anything on that subject.

One of the things we all like to do, and can do with profit, is to compare our civilization with the civilizations of ages past. We sometimes get from it gratification, and we may sometimes get instruction, too. Certainly in many things we cannot pride ourselves on having made the gains upon the past which the length of time and opportunity have afforded occasion for. When we see the great buildings of by-gone ages, both those in ruins and those which still gratify the eye, we cannot justly claim to be greatly the superiors of the ancients in architecture; and when we remember the works of art, the chief of which have come down to us from the long ago, we cannot claim any superiority there, nor in many other ways. Certainly we should like to have some old Romans rise from the dead and teach us how to build and maintain good roads.

But we may take pride in the fact that we have made great gains in other directions—in many material ways. In the development of science and of the applied arts we can claim to have made tremendous advances, but what we may be proudest of is the advance on the lines of humanity and morals.

I do not believe that the rich have much greater opportunities or methods of gratification now than they had long ago. I do not know that Newport can claim to be far ahead of Herculaneum and the other resorts of ancient Rome, in the modes of displaying and enjoying wealth, if we may judge by what we have discovered there and from what we see here. Where we have progressed has been by spreading among the people generally greater means of happiness and comfort. We have multiplied pleasant homes throughout the land. We have let in intelligence and enlightenment, and created all sorts of facilities for making life pleasant to the people and their families. But still more can we claim that we have advanced beyond those days in the care of the unfortunate—all kinds of unfortunate. We go back and excavate the ruins of ancient civilizations and we are astonished at the magnitude and skill, at the taste and the workmanship with which they were constructed, so that many of them have withstood the assaults of centuries. We find there magnificent temples, we find amphitheatres and arenas where the pleasure of brutal multitudes was served. We find that great Coliseum where they sat and enjoyed the tortures of unfortunate victims. We go through their cells and dungeons which stand to-day, or we find palaces where royalty and rank held forth in luxury. But so far as I know I have never heard of any ruins or any vestiges in the way of asylums or hospitals where the victims of the calamities of life might go for shelter or for treatment. And this is especially true of the unfortunates who had that worst of all afflictions, that of the mind, because they were believed to be possessed of evil spirits. They were thought to be only fit for outcasts, to be dealt with by incantations, or to be chained or cast out as the offal of society.

Then when the Christian era came with its humane teachings, which applied not only to the life to come, but to the healing in this life—one of the greatest things about the life of the Savior was that he did not confine his attention to the soul and the life to

come, but healed the sick and made the blind see—even then when a new era seemed to be dawning—a new era for the unfortunates, when the great men of medicine, like Hippocrates and Galen, began to study this dire affliction, which has existed in all ages of mankind, it was not long before the dark ages came and set everything back and these unfortunates were again treated as victims of diabolism. They were again bound in chains, cast out in the high-ways where they might find their livelihood as best they could, or meet their death from suffering and privation. And during all those centuries we find only to our shame, and to the shame of the race, that not one step of progress seems to have been made toward the amelioration of this great affliction. There were no places but jails to confine them, there was nobody who seemed to have an intelligent understanding of their difficulty and the means of removing it; and when we read of the thousands and hundreds of thousands who perished, or the equal numbers who were executed for witchcraft, we want to turn our backs on that page of our history and thank God it came to an end before our day.

It came to an end by the intelligent work of men like you who applied scientific methods to discover the cause and seek to apply a remedy, and when it was once discovered that mental trouble was a disease and not an affliction of the devil—that it was not brought on a man as a punishment for his sins any more than any other disease, that it might have come to him by descent, and that even if he did owe it to some bad habit of his own he was no worse than anybody else who had some other disease—then the world began to look with pity instead of enmity and contempt on these unfortunates. Then a new era began, then Christianity became a reality, then men began to be able to look each other in the face without feeling ashamed that with all the growth of material prosperity, in wealth, in means of enjoyment of life, they had forgotten the poor and unfortunate.

Even in our own day we may be proud of the progress which has been made. As the name indicates, the first thing was the asylum, a place where the afflicted in mind could go to avoid the mockery and abuse or neglect of mankind, but now, to express more accurately the object which you gentlemen have in view in your labors, we have hospitals, where they not only may secure

the kind of care and protection to which their misfortunes entitle them from us out of gratitude to God that we are spared those misfortunes, but they may also utilize whatever chance and opportunity there is for restoration.

In a practical age like ours the question is often asked, "What is the use, what is there in it?" Well, I am not willing to admit that this is always the proper question, because if I do admit that I would admit that man has no higher end—that there is nothing except gain in this world—but there is gain here. The restoration of one in a thousand is enough to strive for. The amelioration of the suffering of the other nine hundred and ninety-nine, if there be no cure, is something worth striving for. It is worth it because there is nothing that so humanizes a man, so civilizes him, makes him fit for this life and the life to come, as to do something for somebody else, even though it does not pay in dollars and cents, and who knows what the effect of humanity and the proper treatment may be even if there be no cure? Who knows? Has your science taught you yet what the thoughts and feelings of these unfortunates are? When we are asleep where are our minds? For all we know they may go back and be in touch with the source of all life. They may go and come back again. When the mind loses its connection with the bodily functions so that it is no longer in wakeful action, it is somewhere—where is it? Is it a blank? May it not be that these unfortunates have in some way a touch with the higher unseen life after all? And is it nothing for us that we may and do afford them some help in the life which they must live?

It would be too bad if, after the race has risen to this great occasion, after it has shown its title to humanity by giving its wealth in erecting hospitals, when it has given its best talent in you gentlemen and your kind all over the world to the study and application of remedies, it would be too bad if, after all, insanity should be permitted to be used as an excuse for crime. It would be too bad if the medical experts who have done this great work of humanity, were to turn around and lend themselves to the protection of those who harm society, under the pretense of insanity. That was a very brutal saying of an English judge that "If a man has an irresistible desire to kill, the law ought to have

an irresistible desire to hang him," but it is true that the protection of society requires that the insane, if they commit wrongs upon their kind, should at least be confined. It is either punishment or protection that society owes itself. It is useless to punish one who is insane. It is useless to attempt with him anything in the way of reformation, because he is beyond it, but when an unfortunate who with or without his own fault becomes dangerous to society and commits wrong to another, there ought to be no escape in civilized society from his confinement either as punishment or precaution. Insane men are liable civilly for damages for every injury they commit, why should society not protect itself by also making them liable if not to punishment at least to confinement by way of precaution for the protection of others?

We hear a great deal about experts, and recently we have had some striking instances where science in your line has been called upon in the courts. A great deal has been said about differences between men of equal scientific attainments and equal opportunities for observation. Now I do not think that in itself is any subject of criticism, because all men may differ, but I do think that there is a distinction between the differences of men of science and those of some others whose differences are proverbial. There are the lawyers who differ; there is one on each side. It is their business to differ. The lawyer is employed to advocate one side and lay before the tribunal every consideration which ought to weigh on that side, and he is met by another who presents the counter considerations for the other side. They say the tribunals also disagree. So they do, but it is the exception and not the rule. I think the trouble about the disagreement of many experts is more due to partisanship when they ought not to be partisans because they are witnesses. I think this is to be deprecated because it casts a reflection on one of the greatest professions in the world. I have often regretted that I was not a doctor instead of a lawyer, because I know of nothing which appeals so much to my humanity as the idea of ministering to the sick and unfortunate.

One of the greatest obligations that you have to perform is to give your unbiased judgment when called upon as witnesses. The people more and more every year have had to rely upon the testimony of experts. When called upon the witness stand you should

consider yourselves trustees of the race with respect to the learning and skill which you alone possess, and not partisans. You should always give impartial testimony. (Applause.) And yet it is natural, I suppose doctors are like the rest of us. We take sides, even at a dog fight. It is sometimes a matter of temperament. I remember not so long ago I was employed in a very important case in which there were a number of very distinguished mental experts on both sides. I will say for them that they were just and fair, all but one. I do not say this because I was on the other side and it fell to me to cross-examine him. I saw his bent and bias, and said to him right at the beginning, "Doctor, just forget this case of Jones vs. Smith. I want you to give me and the jury some information regarding subjects about which we are ignorant. I am going to ask you general questions and none in relation to this case on which you have already given your opinion." When I asked him as to the general effect of the use of a drug in certain quantities in a certain time, if it was not so and so, he answered, "Yes, it is, but that was not so in this case." I said, "My dear doctor, I am not talking about this case, I am getting general information." Well, I asked the question again and received the same answer, and still another time, but he would not answer fairly. He always wound up by saying, "but that did not apply in this case." After the trial was over he said to me, "Why, I did not know you were in this case, I am a client of your firm. If I had known that, I would not have gone into it." Which shows, by the way, that it is a wise lawyer who knows all the clients of his firm. (Laughter.) I think my doctor friend belonged to the same class as one I read about who said after the trial, "We won the case."

And really there are some very ridiculous claims set up of insanity which have gone to the highest courts in cases involving the question of mental condition. I have noted a few out of the great multitude, I would not say that in all of them medical experts were called, although they may have been, but when I find it solemnly decided that it is no evidence of insanity for a widow who wants to marry to read her love letters and boast of her conquests, I think that insanity is getting to be beyond my comprehension; and that it is not a sign of insanity for a man to swear

when he wrestles with a refractory collar button, nor for a woman to spit over a fence. I suppose that last idea came to some learned brother of mine who had been reading the Bible about David feigning insanity and letting his spittle fall down on his beard. But I think, as I said, that one of the obligations that gentlemen of your profession owe to the community is to give it the benefit of your plain unbiased judgment when called upon, and to remember that you are doing it as witnesses and nothing else, because in these days when we are all living under high pressure, and when I am not sure that the lightning expresses, telephones, air ships and automobiles are in all respects blessings, the liability of being called upon to testify has multiplied year after year. I think the community is coming more and more to have to lean upon expert opinions as to how it ought to deal with men who commit offenses against the law.

Many methods have been proposed, but I am not going to stop to discuss any of them—such as permanent bodies of experts to be called in, lay judges as it were, such as we used to have here. We had the professional judge and two laymen, sitting one on each side, who posted him on affairs of every-day life of which he was supposed to be ignorant. They used to call the court a horse and two jackasses. I do not know whether any of these plans would work or not, but I do hope that one of the things the future is to bring about is to be the willingness of the people to depend more and more upon the fairness and judgment of you gentlemen with respect to the administration of justice, and this cannot be unless and until they are assured of your entire fairness and devotion to the public welfare from first to last.

I am very glad indeed to take part in welcoming you to our city, not only because of your personality, but also because of the interest we all take in your great profession, an interest which is personal to every one of us, because in these days of great stress and strain nobody can know when he or those he loves may find themselves in need of the care and the gentle treatment and the scientific remedies which you so well know how to apply. We are glad to see you and hope to see you often again, and our gates and our hearts are always open to you. (Applause.)

THE RÔLE OF THE MENTAL FACTORS IN PSYCHIATRY.

By ADOLF MEYER, M. D., LL. D.,

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Nearly forty years ago John P. Gray made a plea for the view that mind cannot become diseased itself, and that there cannot be any *mental* diseases, but only diseases of the brain.¹ To prove this, he eradicated as a superstition the idea that mental or moral causes could figure in the etiology of mental disorders. He published a table of the causes in the cases admitted during the years 1843-1870 and in these he gave the following ratio in percentages (selection from the complete table) :

	1843.	1851.	1860.	1865.	1866.	1867.	1868.
Moral causes	46.38	30.05	13.95	5.41	3.09		
Physical causes	33.70	62.57	70.33	73.35	67.78	80.05	77.49
Unascertained causes ..	19.93	7.37	15.73	21.24	29.12	19.95	22.51

He achieved his practical aim to harmonize the theory and the wise aspiration to obtain the supremacy of physicians in the care of the insane. But he went from one extreme—the tendency to systematic ignoring of the somatic factors in the lay-public—to another extreme, the disregard of the mental factors.

Pathology also had to pass through extremes. From witchcraft and humoral pathology, it had become a study of *lesions* and their consequences. Lesions of the brain figured as the only possible explanations of disorders of its functions. So numerous were the anatomical and histological discoveries that they absorbed all the attention; and what was not known yet was nevertheless put down in terms of some kind of "lesion" and the *knowledge of the lesion* was the pathology.

¹ This contrast turns partly on the meaning of "disease," which according to older pathological conceptions cannot pertain to function but only to the organ; and partly it aims to steer clear of the issue whether mind is a function of the brain or perhaps the eternal principle, which we naturally would not like to think of as "diseased."

In the meantime a revolution has taken place. The theory of immunity brought pathology to experimental terms. The great fact had to be accepted that an organism which had had small-pox was protected for a period. The capacity of *resistance* to degrees of virulence of anthrax became an issue greater than that of a mere knowledge of the tissue changes. The mere histologist has given way to the experimentalist; or rather, a *combination* of all the available facts, causal, functional and structural, in terms of experiments, has become the central thought of pathology.

The finest histological demonstration of the posterior column lesions of tabes—by many thought to be “the pathology of the disease”—would not tell us that if you wish to avoid tabes you must avoid syphilis. The knowledge of lesions is but *one* of the resources of the formula of real pathology, and this formula is: (1) What is the condition under study (the disturbance expressed functionally or anatomically, but at least sufficiently to distinguish it from other similar conditions)? (2) What are the conditions under which it arises? and (3) To what extent are the conditions and the developments modifiable?

We know now that the lesion itself if we know it, is only one of the *symptoms* (although to be sure one of the type which “keep” and can be bottled up and demonstrated longer than the functional symptoms), and that the whole condition must be expressed in a lucid equation of an experiment of nature before it gives us the satisfaction of knowing the “pathology.”

Hence the mere *assumption* of a hypothetical lesion is no solution and not even necessarily the most stimulating hypothesis. Thus we come to hear again of “psychogenetic developments” of cases of dementia præcox and of depressions, hysterical tantrums, etc. What can this mean?

Take the case of a woman of somewhat restricted capacity who was forced by circumstances to move on two occasions and each time and on no other occasion worked herself into a depression; she did not see how she could do the work and, instead of doing the best she could, she dropped into a state of evil anticipation, lamentation, perplexity—a typical depression of several months’ duration. Her sister too had a depression of a rather different character, but also on provocation. We do well to point

to the constitutional peculiarity—a lack of immunity. Since there *are* cases in which we cannot find any precipitating factors we are apt to spread ourselves on a statement of heredity and possibly degeneracy of make-up, of possible lesions, etc., and to over-emphasize these issues. What we actually know is that this patient is apt to react with a peculiar depressive reaction where others get along with fair balance. The etiology thus involves (1) constitutional make-up, and (2) a precipitating factor; and in our eagerness we cut out the latter and only speak of the heredity or constitutional make-up. It is my contention that we must use *both* facts and that of the two, for *prevention* and for the special characterization of the make-up, the precipitating factor is of the greater importance because *it* alone gives us an idea of the actual defect and a suggestion as to how to strengthen the person that he may become resistive. It is a problem of index of resistance with regard to *certain difficulties of mental adjustment*.

Take another case: a girl taken advantage of by a neighbor's boy at six. She did not dare tell any one for shame; and without knowing what it all meant, she imagined things about it, that she had become different from others. It is difficult to know how much children can elaborate such feelings and how much they can become entangled and twisted by amplifying dreams and talk of others and what not, if once started on a track without the normal corrections. At eleven, the patient had a slight accident and limped for six months. A plain ovarialgia with typical hysterical convulsions and paraplegia followed her nursing her sister through an illness at eighteen; recovery in one year. Then, at twenty-one, after nursing and losing her grandmother, she experienced a new collapse, again with recovery. At twenty-five, there came a hysterical psychosis which was mismanaged and drifted into stupor, then excitement and then a classical catatonic dementia. For every step there are adequate causes; usually causes which would not have upset you or me, but which upset the patient. Now what makes the difference between her and you and me? A different make-up, yes; but what kind? Can we expect a full answer in some general term? Do we not, to explain it usefully and practically, have to express it in the very facts of the history? Every step is like an experiment telling us the story,

and giving us the concrete facts to be minded; while to speak merely of "hysteria" or later of "dementia præcox" gives us no good clue as to what to prevent, and what sore spots to protect and what weak sides to strengthen, but only a general characterization of the possible mischief and the probable *absence* of a palpable lesion, and the fact that the disorder consists of a faulty hanging together of the mental reactions or adjustments, shown by and promoted by previous maladjustments.

Some of you are probably familiar with my explanation of many of the conditions now lumped together as dementia præcox. I started from the realization that in some diseases we are continually promising ourselves lesions, and over that we neglect facts which are even now at hand and ready to be sized up and the very things we must learn to handle. Some persons are immune and readily balanced, others get wrecked. The main question is, What makes the difference? Some talk of degeneracy, others of autointoxications and still others of glia-overgrowth—but these statements are often enough mere conjectures or refer to merely incidental facts and do not give us much to go by.

Take a case of catatonic stupor. There are evidently many factors involved. All I want to know is whether I can best clinch the facts actually known about the patient by using what is accessible (usually a characteristic string of habit developments and experiences and maladjustments), or by *inventing* some poisons or what not.

It has been my experience to find in many a case of dementia præcox far more forerunners of actual mischief than the average alienist gets at by his examination when he avoids these facts or does not know how to use them. And it has become my conviction that the developments in some mental diseases are rather the results of peculiar mental tangles than the result of any coarsely appreciable and demonstrable brain lesion or poisoning—the natural further development of inefficient reaction-types; and that I would rather look at the bird in the hand, and act on the available facts, while I can still live in hope that some day I might find an organ or poison which is more involved than another, and which might be given a prop.

I should consider it preposterously absurd to try to explain an alcoholic delirium merely on fears and psychogenetic factors, leav-

ing out of sight the stomach condition and lack of food and sleep; and I consider it as equally absurd to disregard the experience with the moving and all it implied, the twist of the hysterical woman along the line of a supposed internal injury, and its being used in the development of a catatonia, or the weight of habitual indecision and lack of completion in psychasthenia, the habit conflicts and deterioration of sane instincts in dementia præcox, etc. Where these facts *exist*, we should use *them* rather than wholly hypothetical poisons. Where we *do* find somatic disorders we use them; where we should have to invent them first in order to get anything to work with we had better use the facts at hand for what they are worth to reconstruct the disorder in terms of an experiment of nature.

Why the dissatisfaction with explanations of a psychogenetic character?

(1) Because the facts are difficult to get at, and difficult to control critically, and often used for stupid inferences, for instance, a notion that a psychogenetic origin, *i. e.* a development out of natural mental activities which need not harm you and me, could not explain occasional lasting and frequently progressive disorders (in the face of the fact that nothing is more difficult to change than a political or religious or other deeply rooted conviction or tendency and nothing more difficult to stem than an unbalanced tendency to mysticism, lying, etc.).

(2) Because there prevail misleading dogmatic ideas about mind.

It is unfortunate that science still adheres to an effete and impossible contrast between mental and physical. More and more we realize that what figures to our mind as *matter* is much better expressed in terms of combinations of electrons, if not simply of energies, which throw off many of the forbidding and restrictive features of those masses which form the starting-point of our concept of inert matter, which is practically sufficient for most demands of ordinary physics, but a hindrance to a better conception of the more complex happenings of biochemistry. Mind, on the other hand, is a *sufficiently organized living being in action*; and not a peculiar form of mind-stuff. A sufficiently organized brain is the main central link, but mental activity is really best

understood in its full meaning as the adaptation and adjustment of the individual as a whole, in contrast to the simple activity of single organs such as those of circulation, respiration, digestion, elimination, or simple reflex activity.

We know, of course, that in these reactions which we know as mental, the brain forms the central link at work, although we know but little of the detail working. Sensorimotor adjustments form an essential part and as soon as we pass from the simple representative reactions such as sensations and thoughts, to the affective reactions, emotions and actions, we get a distinct participation of the work of glands, of circulation, of respiration and muscular-adjustments, so that organs serving *as such* more limited "infrapsychic" purposes, enter as intrinsic parts into emotions, appetites, instincts and actions, so as to form the concrete *conduct and behavior*, which is the main thing deranged in our patients.

Thus we do not contrast mental activity with physical activity, which can be shown to be an artificial contrast with untenable and not truly scientific foundation, but mental activity and non-mental activity; activity of the person as a whole as mental activity, contrasted with the activity of the individual organs when working without mental links (as the heart does when removed from the body, or the various organs in the mere vegetative regulations and functions).

We do not know all the details of the modes of collaboration, but the main lines. We study their differences of various reaction-types and of modifiability in various individuals and determine their chances of adjustment, and their ability to work themselves through the conflicts, tangles and temptations of usual and unusual demands. The extent to which the individual is capable of elaborating an efficient reaction determines the person's level. Our comparative measure of the various disabilities (of a patient getting through the difficulty of moving, the difficulty of getting square with an infantile trauma and its imaginary elaborations, the difficulty and twist resulting from psychasthenic habitual indecision and substitution of ruminations and panics and all that) is the normal complete reaction or adjustment to and of the situation. Why the tantrum? How can it be forestalled? Such would be the questions and problems uppermost in my mind.

The common reasoning is that if the patient gets through one tangle or one delusion, the disease still remains and other delusions will form. This I think is very often not correct, unless we bow dogmatically to an unwarrantedly broad notion of "disease." Mere disposition is not the disease. In practice that assumption is certainly very often *proved* to be false if we handle the conditions correctly. Very often the supposed disease back of it all is a myth and merely a self-protective term for an insufficient knowledge of the conditions of reaction and inadequacy of our present remedial skill.

Unfortunately our habits of diction lead us to call mental only the most specialized central reaction, the "thought," or at least the more essentially subjective part of the reaction. Yet as practical persons you do not take the word of an unknown person, but the act as the real event. If you do that in psychopathology, and not before that, you also deal with conclusive factors. The act, not merely the possible step to it, counts; the *reaction* of the person as a whole, not merely one "thought," or part-step. We can under no circumstances afford to ignore the mental facts in the development of a large group of mental disorders. They *can* be the only expression of the facts to be heeded and to be worked with. But the mental facts we speak of are not mere thoughts but actual attitudes, affects, volitions and activities and possibly disorders of discrimination (which are oftener due to infrapsychic disturbances, as is shown by the psychosensory deliria).

Every mental adjustment must be in keeping with the laws of anabolism and catabolism; it has its somatic components. It is, therefore, intelligible that it *may* be easier to precipitate harm than to correct it, and that some disorders or conflicts may permanently damage the processes of anabolism.

I should like to illustrate further the influence of such an event as an upsetting shame and its setting in a depression, or an anxiety—but I have used too much of your time already.² I only want to say one more word and that with regard to the *test* of the whole proposition: the existence or non-existence of psychotherapeutic helps.

If mental factors meant nothing, psychotherapy would be a snare and a delusion. Is it so? What is psychotherapy? Lately

² See the Appendix.

I heard two papers on this question,— one an excellent sketch of the history and not without an occasional emphasis on the queer and on the yellow streak in what is commonly known as psychotherapy and suggestion. The other was a simple discussion of the treatment of constipation by establishing an unshakable habit. It was psychologically interesting to watch the distinguished audience. The first paper expressed what in the main has been the general practice and the foundations of some of the more recent developments, with many side-lights but no urgent appeal to any special reform in the attitude of the physician. It elicited full appreciation as a fair and conservative general statement.

The report of the cures of even the most obstinate constipations with the simple method of Dubois and good sense and establishment of a habit met with smiles. Why? Because many men believe they *have* tried that method and have failed; and they do not realize that usually it is because they did not insist on the chief principle of psychotherapy, *viz.*, that it is not talk or “thought” alone, but *the doing of things*, that is wanted. A physician will ask a patient whether he took his pill; but when he gives a sometimes somewhat elaborate régime of how to do things—*i. e.*, the best psychotherapy by help and education—he often does not take correspondingly elaborate pains to control the carrying out of the plan to the dot—and he fails.

Psychotherapy is regulation of action and only complete when action is reached. This is why we all use it in the form of occupation or rest, where it is an efficient and controllable form of regulation. This is why we teach patients to actually take different attitudes to things. Habit-training is the back-bone of psychotherapy; suggestion merely a step to the end and of use only to the one who knows that the end can and *must* be *attained*. Action with flesh and bone is the only safe criterion of efficient mental activity; and actions and attitude and their adaptation is the issue in psychotherapy.

To sum up: There are conditions in which disorders of function (possibly with definite lesions) of special organs are the essential explanation of a mental disorder—a perversion of metabolism by poison, a digestive upset, a syphilitic reaction or an antisiphilitic reaction of the nervous system, an arteriosclerosis,

and, in *these*, the *mental* facts are the *incidental* facts of the experimental chain.

But there *are* cases in which the apparent disorder of individual organs is merely an incident in a development which we could not understand correctly except by comparing it with the normal and efficient reaction of the individual as a whole, and for that we must use terms of psychology—not of mysterious events, but *actions* and *reactions* of which we know that they *do* things, a truly dynamic psychology. There we find the irrepressible instincts and habits at work, and finally the characteristic mental reaction-type constituting the obviously pathological aberrations, and while it may be too late in many cases to stem the stream of destructive action—action beyond correction and in conflict with the laws of balance of anabolism and catabolism—seeing the facts in the right way will help us set aright what *can* be set aright, prevent what *can* be prevented and do what *can* be done to secure gymnastics and orthopædics of mind—*i. e.*, of the conduct and efficiency of the person as a whole.

Modern pathology sees in most “diseases” nature’s way of righting inadequate balance. They are crude ways of *repair*, not the enemy itself; reactions to be guided, not to be suppressed; and to understand the whole process you can no longer get along by dreaming of lesions when your facts are too meagre; but you see the facts as they are, the reaction of the patient;—and *he* is a psychopathologist who can help nature strike the balance with the least expense to the patient. Much psychopathology and psychotherapy will depend on the bracing of weak organs; but its work is not concluded before the patient is shown the level of his mental metabolism, the level of efficient anabolism and catabolism in terms of conduct and behavior and efficient meeting of the difficulties worth meeting, and avoidance of what otherwise would be a foolish attempt.

This is a progress beyond John P. Gray, and I feel that had he seen the recent developments, man of action as he was, he would himself have subscribed to the rule that the real aim of psychiatry is to attain balance of the metabolism of conduct, obtained, according to the accessibility of the facts, from the adjustment of the individual organs, or from adjustment of the activities and

attitudes which we can only size up in terms of a psychology of "activity of the individual as a whole." And, last but not least, we see that there is a deep reason for our interest in the adjustment of the *tasks* of adaptation, a straightening out of the situation outside of the patient, the family and other problems of adjustment which may be too much for the patient. These have always been the practical ways; and by dropping some unnecessary shells and traditions, we can see a psychopathology develop without absurd contrasts between mental and physical, and rather a division into adjustments of the person as a whole and adjustments of individual organs.

APPENDIX.

I admit that the essentially qualitative character of thoughts and mental reactions requires a special way of sizing them up and certain safe-guards in their use.

The representative or symbolizing tendency of mental reactions introduces a possibility of many degrees or depths in which the mental experience can occur. Thus a person in telling of a danger can have a *thought or idea of fear* without having the fear itself, or he can *feel* a slight shudder with it, or show the fear slightly or deeply, and still the type of thought-connection and the accompanying vasomotor reaction and mimic expression and attitude as far as it does participate has at least the *tendency* to be of the kind of the full reaction, which might occur when the danger would be considered immediate. The word or other expressions can evidently serve as a signal in a mere system of intercommunication among individuals and in a system of association within a person, according to the concomitant situation and previous experience of the person. We find indeed that the mental reactions belong as much to a system of intercommunication as to a function of the individual, and within the individual all degrees of *depth* of reaction are possible, from mere use of the *word* to an actual experience of fear.

Or to take the word or thought "shame" and its ways of appearing as a reaction. If we come across it in a dictionary it associates itself with the line of interest in spelling, in etymology, and in usage in different meanings, and unless watched with special methods as in an association experiment, or perhaps the galvanometric reaction of Veraguth and Jung, the worst sinner will not prove stirred by it. It is there the abstract and impersonal sign ready for use where it fits and ready to blend in associations as a biological function with other personal or interindividual states. Have it occur casually within the reach of a person who has cause for shame, but does not see the actual connection in which the word is spoken, and he will get a suspicion that it refers to him, and may actually feel or experience slightly or deeply that whole wave of a personal change of

vasomotor and general attitude, that which the most dogmatic psychologist would have to refer to as a shame-reaction, not merely as an abstract thought or abstract mental reaction, but a general biological response with all its expressions, foundations, and consequences in the form of blushing, dodging and other changes of attitude and their influence on personal conduct, and the effect on others, a unit of reactions which we cannot split into physical and mental to any advantage, but which we can contrast with other mental or non-mental fluctuations and vasomotor innervation, attitudes and the like, *i. e.*, with other ways of reaction and of disposing of a difficulty or situation. This should suffice to show that there are many *degrees* of the shame-reaction, from the mere impersonal word-thought or symbol to the thought of possibility of shame and to the real actual shame; and that its specific momentum at any moment or in any person depends usually on a "mental situation," in the sense of a situation to which a person reacts not because it affects his respiration or digestion or circulation or glands individually and directly, but because a reaction-complex is touched with which every being of a given organization reacts instinctively, *i. e.*, because he is made so and biologically so organized and attuned, that, to his benefit or discomfort and the best mode of evolution of the individual or the species, he adjusts himself in that way to special situations. Whether the shame-complex achieves its purpose or at least takes its course with a superficial or a deep stir, depends on the balance of the person, his constitutional disposition, the special emotional balance of the moment and the demands or alternatives of the situation. It is our experience that the emotional or diffusely mental reactions are balanced in a variably easy fashion. The person may be unusually adjusted or sensitive, especially "shameful" or especially "shameless," by instinct or by training, or owing to a possibly corrigible attitude to the cause for shame. In some it is a wholesome step in a wholesome adjustment, in others it has become intellectualized and replaced and its appearance may be a signal of maladjustment. We see further that some *physical* disturbances can bring in deeply complicating obstacles to an easy balancing. Much of a shame-reaction is vasomotor or vascular; if the vasomotors do not balance well by themselves they will not work perfectly when they are participating in a mental or emotional reaction. If you have superadded the element of worry with an additional vascular strain you will find persons with poor vascular adjustment suffer more seriously than a healthy normal individual; the interference with sleep and digestion, too, may be more profound under a general lowering.

But now we wish to *measure* or size up the lowering below the level of the normal average for prognosis or prophylaxis. We find that we can do so most directly by seeing *how* a person reacts to any *other* shame or worry, or when the *specific* disturbing situation is touched upon; or if the shame or worry has set in we can measure its *depth* by our efforts to remove it with the means of every-day life *or*, still better, with the more circumspect and studied methods of the experienced practical psychologist

and manager of men. Or we can try and get a measure by testing the blood-pressure, the gastric activity and other physical features. Which ones give us the safest measure? Which ones give us the most instructive and helpful sizing up of the difficulty to be overcome? The physiological extra-mental measures would certainly be quite instructive and helpful, but they are cumbersome and not unequivocal. After all the real test comes only from our trying the concrete difficulty in terms of how the person acts, feels, responds to helps or additional disturbance and arrives at a final adjustment. We get a preliminary measure of the person's vulnerability in his lack of versatility, his inexperience, his sensitive standards, his having reacted in similar ways before, or what not, and compare the reaction with that of the upset under investigation. We need the psychological history of the patient's concrete life and habits of reaction, that is *his* psychological status, *his* scope and adaptability of mental adjustment, and we can then weigh to what extent any special organ or any special aggravating factor played a rôle in the upset.

I cannot help making these considerations in view of a recent attempt in the press to dispose of this issue along dogmatic lines.

Quite recently a New York daily paper brought a long sensational account of the baneful effects of justified shame on an iron-moulder, who served on a jury for the first time, and was dismissed by the judge and fined fifty dollars with the rest, because in order to avoid delay and heavy loss for one of the jurymen, the jurors, as a last resort, after long deliberations, decided the damage suit by the toss of a coin. This most undesirable experience and disgrace led to a depression, sleeplessness, and loss of flesh, and at the end of a month a pneumonia and difficulty of circulation led to death. The reporter's story exploited the "moral shock," so much so that an editorial writer felt it incumbent on him to go to the other extreme. The one spoke of "death caused by chagrin and sorrow—indubitable proof of the power of mind over body." "Yet this theory is in all probability wrong and entirely wrong. 'After' and 'because' are confounded, cause and effect transposed by it." "There is little danger in asserting that the exaggerated sensitiveness shown by the man, his inability to see what had happened to him in its true proportions, his refusal to accept the view of the facts taken by his trusted friends, were all symptoms of the same disease, whatever it was, that made him lose ninety-six pounds of flesh in a month, robbed him of his sleep, and changed him from an active mechanic keenly interested in politics into a shrinking recluse, grieving over imaginary ills.

"Had Casey been the well man he seemed he would have suffered little or no more from deserved criticism than did his fellows on the jury, and he would have reacted to it as they did. At most his experience could only have hurried the progress of his malady, and it is doubtful if it did even that. If it hadn't been that experience, some other as inadequate would have supplied the apparently 'mental' cause of his decline."

These lines contain an interesting mixture of good sense and partiality coming from a dogmatic attitude. The whole series of events from a

retrospective point of view, and especially in view of the palpable pneumonia and other changes existing at death, appears as a complex chain in which the shame and the reaction to it plays a relatively insignificant rôle, not more than the "cold" which we have good reason to incriminate in a pneumonia under certain circumstances. The editorial errs when it claims that the "disease, whatever it was," should anyhow have developed in exactly the same way. We can only speak of a disposition at the outset, and we know that in many depressions various defects of disposition come to the front (see my paper "On some Terminal Diseases in Melancholia," *Journal of Insanity*, 1902). It is the old problem of "causes," which will remain a bugbear as long as we insist on merely looking backward at the events and on picking out a few salient facts which seem safe and sufficient to account for the whole result. As soon as we make it a rule to reconstruct the facts in each case also from the point of view of prophylaxis in future similar conditions, we are bound to balance our estimate of the facts. We get along without the dogmatic concept "the disease" and without gratuitous assumptions that the *possibility* of some other experience as inadequate could minimize the weight of the actual experience which brought the level of the man to a crucial test. Any one who studies depressions and their prevention sees that we must concern ourselves with the capacity of individuals to meet situations, their "mental" as well as other physical preparedness, and that this is an issue of mental hygiene.

The whole problem has its counterpart in the plainest and simplest and most experimental of all diseases, the infections. There was a time when a cold was an indiscriminately used "cause" of pneumonias. Then came a time when the notion was laughed at, because the infection was the link of the chain chiefly in evidence. To-day we know that in a certain percentage of cases the person carries the infectious material with impunity, and without the "disease"; and that the combination of circumstances which we call "catching cold" can indeed play a rôle in lowering the defences. Why do we pay attention to adjusting our dress to sudden change of temperature? Practically we acknowledge the causal value of the situation, until we shall have more accurate ways of specifying the facts. So it is with emotional causes of disease. The fact that a "causal factor" does not inevitably lead to the same results in all persons and in the same person at all times, does not eliminate it as a "factor."

The instance just given may leave the right on the side of the editor in the specific case mentioned. But his reasoning is nevertheless misleading and just the kind of attitude which stands in the way of a rational appreciation of what mental hygiene means. Where an essentially mental disturbance is the result of an "experience," the same reasoning is applied and merely "physical" causes are admitted as adequate causes by the dogma.

The greatest master of Anglo-Saxon thought has given us in Lady Macbeth's dream-states a marvelous picture of a psychosis of the type which just begins to play a more prominent part in psychopathology—the

psychogenetic disorders, in this case the living over of troubling episodes in hysterical dream-states. And he has depicted the physician in his dilemma when he lives under a dogma. He makes the doctor say: "This disease is beyond my practice; yet I have known those which have walked in their sleep who have died holily in their beds." Again: "Infected minds to their deaf pillows will discharge their secrets; more needs she the divine than the physician." And monologizing over what he had seen, he remarks: "I think but dare not speak." He sees the plain facts and he thinks but dares not speak, and would like to pass the case to the minister of the soul. We begin to reach the stage when we allow ourselves to think, yea teach that it is our duty to think, and to act—and to handle the facts as we understand them.

DISCUSSION.

DR. BRUSH.—I knew Dr. John P. Gray, and he would be interested in what Dr. Meyer has said in reference to him. I hardly concur with Dr. Meyer's conclusions in regard to Dr. Gray's findings. I think Dr. Pilgrim and Dr. Blumer, both, like myself, at one time his assistants, will confirm my statement. Dr. Gray was to some extent misunderstood, and it is fairly possible that Dr. Meyer may have to some degree misunderstood him. I very well remember when a very eminent physician of Cincinnati said in my presence that if there was one man about whom it might be said that his death was a good thing for psychiatry, it was Dr. Gray, because he had been preaching from the beginning of his career the idea of no physical basis of insanity. I told him it would be a good thing for him to learn a little more of the fact that John P. Gray preached the physical basis of insanity and almost nothing else!

I very well remember one of my first experiences at the Utica State Hospital, and I think that experience has been confirmed by the experiences of others who are now present at this meeting. Like all youngsters, I thought books contained the wisdom of all time, and that the books on psychiatry were going to lead me into the ways of knowledge, and I asked Dr. Gray the best books to read in the excellently equipped library of the hospital. He said, "If you will go into the wards, you will find some cases of depression, and then you will find some more cases of depression, and then you will find some others, and you find out the difference between those conditions of depression and tell me something about them. A study of the cases will do more for you than any text-book."

I think he had foresight of the facts Dr. Meyer has brought to our attention. He did insist upon a physical cause for mental symptoms, but there were cases in which he recognized that the mental factors must also be taken into account, as well also as the environment, and the patient's reaction thereto.

Dr. Meyer has given us a timely paper, but one which it is difficult to properly discuss upon short notice. It demands careful reading and study.

DR. BLUMER.—Dr. Brush's remarks furnish but one more proof, if proof were necessary, that by mere contact of one mind with another, without any utterance whatever, a process of absorption may take place and the first speaker get hold of exactly what was in the mind of the person by whom he has been sitting. While Dr. Meyer spoke of Dr. Gray and the part he played in establishing the fact of the physical basis of insanity, I knew very well that my former chief's published writings contain absolute proof that he was well aware of the part played by the mental factors in insanity, for if the distinguished speaker will take the time to read a certain paper by Dr. Gray on mental hygiene, if he has not already done so—it was written about 30 years ago—I think he will find there sufficient recognition of that fact. But it is very difficult to discuss offhand so strong and able a paper as that of Dr. Meyer. For me it is very much like going up in a balloon and forgetting to take the parachute, and for one I mean to keep my feet on *terra firma* on this question.

I will simply say that it was a great pleasure to hear Dr. Meyer's words of wisdom on the tyranny of organization, namely, that this is by no means all in insanity; and I was especially pleased with his remarks on disordered conduct, as, after all, conduct is the main thing that is disordered in insanity, and without disorder of conduct it would be impossible to prove insanity. Dr. Gray knew that very well. His was not what one would call to-day, I think, a highly scientific mind, but he was a very strong man, a man of great insight, and, above all, a man of great common sense. He had rather the mind of a lawyer and was essentially a special pleader. He saw for the time being but the one side, although the other side he was quite ready to see later as occasion might require.

DR. DEWEY.—I have but a single remark to make, and that is upon the lesson which I believe is the most important one to be drawn from this most valuable paper; namely, the importance of *all* the facts, especially to those of us whose practice is in psychiatry, of bringing out the mental facts more systematically and completely than has been, or is to-day, customary. Although very great advances and improvements have been made in this direction, still the study of that side of the case needs to be more completely elaborated, and a great deal more to be elicited than ever has been in the history of cases such as Dr. Meyer gives as illustrative, in order that we may better appreciate all the factors and see what and how much can be accomplished by newer and better adaptations of the environment and all means of treatment to the individual needs.

I should like also to express my hope that we may be given more full information as to that psychotherapeutic treatment of constipation with 100 per cent of success. I believe that would have a very great interest.

DR. FRANK P. NORBURY.—I well remember my first excursions into the realms of psychology. I was then a student. The book was Maudsley, "Body and Will," in the first part of which he attacked metaphysical psychology, and in a practical, thorough, and just manner, laid what I believe

is the foundation upon which has been created the modern elaboration of practical psychology, as suggested by Dr. Meyer.

Maudsley has gone on during all of these years in his clinical psychology, and very recently added to his classic contributions a book called "Life in Mind and Conduct," which is a reiteration of his practical conceptions of mind and establishes the fact that conduct is the criterion of mental disorder, thus elaborating facts upon which we may base the doctrine of psychogenic origin of many mental maladies.

The study of mental distinctions, the psychic analysis and synthetic considerations marks the advances in clinical psychology and gives us the lead that will aid in instituting preventive measures. As I said the other night, the work of Witmer, of the University of Pennsylvania, is an advance in clinical psychology as applied to child life, and these same methods, when applied to the promising clinical field to be found in psychiatry, offer great rewards. Clinical psychiatry is just coming into its own, and it is our duty to create the opportunities in this direction that will give it the same footing and value as that now given to pathology. I may be too sanguine, but yet, I believe the time is coming when we will have resident psychologists as well as resident pathologists, for the purpose of developing a clinical psychiatry, and the clinical analytical methods, too, will solve many of the problems of etiology and give value to therapeutical measures. Especially in borderline States, a field in which my work largely is confined, cases seen before they reach large hospitals, and too many are office cases; here is a rich harvest awaiting the clinician, and we must encourage and promote this great and useful work in clinical psychology.

DR. MEYER.—The activity of the individual, as a whole, connected as it is by the central processes of which we are subjectively aware, is mind; the activity as a whole, including everything that leads up to and clinches the activities in conduct.

DR. BANCROFT.—I think Dr. Meyer has opened up a large and interesting field for future study, that has a direct bearing on our efforts for the prevention of insanity. Sometimes I long for the days when the old-fashioned country practitioner was a power; I wish we could recall him, a man who knew the individuals, and the families, among whom he practised, and, understanding them, would recognize that these people would have varying reactions to their environment and conditions in life. In these days of modern specialism, I think there is a danger of neglecting the study of the individual, the personality, and in our future efforts towards the prevention of insanity, this is a subject that I believe is vital.

The ancients were not so far from the right track when they attempted to solve these complicated disease questions by establishing a doctrine of temperaments. This temperament reacted in one way and that temperament in another way. I believe that in our future studies and practice it will be necessary for us to study the temperamental make-up of the individual in order to start a rational prophylaxis. I should be glad to hear from Dr. Meyer, in conclusion, his views on the subject.

DR. MEYER.—Just a word of thanks to the gentlemen who have discussed the paper, and especially should I like to emphasize this, that I always have held that a man like John P. Gray could not help himself if he tried with regard to this question. He wrote a paper in 1870 which I have read from one end to the other, with the realization that he has his own doubt in banishing all the moral causes—they were first 40 per cent, and then ignored completely in the statistical paper, but I am sure never ignored in his practice. If you read the chapter on dementia præcox in such a book as that by Dana, you find all sorts of intangible things under etiology which nobody can help—sex, age, etc. We all have sex and a certain age. The real issues are not mentioned until you come to the latter part of the article, where he begins to speak of the sexual factors, the masturbation, and habit disorders—Why not speak of them in the first place? By dropping certain words and traditions, we open for ourselves a much freer field of thought and direct action.

DR. DE JARNETTE.—A woman hears bad news and drops dead. Does the mind kill the body, or the body kill the mind?

DR. MEYER.—It seems to me that the question is put wholly at variance with my interpretation, and is therefore difficult to answer. Certainly that woman was exposed to a mental reaction which involved her heart probably to an extent to which her heart was not equal. Now you can express that as you may; you can say the heart function as part of her mental reaction killed the rest of the activity of the heart, or you can say that the whole mental reaction killed it. The fact remains she actually died because there was a strain of mental origin on her circulation, on her heart; that mental *and* physical mechanism, which ought to have been ready to meet an occasion of that sort, failed.

DR. DE JARNETTE.—The brain reacted on the heart, but is it not a fact that the heart can act while the brain is not acting—when the subject is unconscious?

DR. MEYER.—I intended to show that, by saying that every individual organ has a specific and independent function by itself, so to speak, where, as in the mental activity, the activity of the person as a whole with the help of mental associations, the organs adjust themselves in a special way to work together in the reaction of conduct.

DR. BLUMER.—I know I am very much out of order in rising to my feet again, but I should like to come to Dr. Meyer's assistance with a supplementary answer to his questioner.

I happened a year or two ago to be in the company of Professor Woodrow Wilson, president of Princeton University, when he told this story: On one occasion he was delivering a lecture in a small town in Pennsylvania on Aristotle, when he announced, somewhat rashly, at the outset of his address, that he was prepared to be interrogated at its close. After he had finished there arose in the back part of the audience a lady, tall

and gaunt, with steel-bowed spectacles, who said to him in an aggressive voice, "Mr. President, do you think the world has made as much progress as it might?" Mr. Wilson was completely nonplused by the singular inquiry and not knowing how to get hold of it, and by way of sparring for wind, said, "Madam, I beg your pardon." She repeated the question in precisely the same words. Then came his wits to him as he replied, "Madam, you are evidently laboring under a great misapprehension. This is a lecture *on* Aristotle, not *by* Aristotle."

EXPERIMENTAL OBSERVATIONS INTO THE ETIOLOGY AND TREATMENT OF PARESIS.

By JOHN D. O'BRIEN, M. D.,

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The uniform mortality of this type of mental disease and the fact that statistics go to show that it is increasing, lead me to offer for your consideration a discussion of its etiology.

In the consideration of a disease so long and so well recognized as "paresis," one is naturally asked the question, "Has any new light been shed upon its causation?" To the genetic relation of syphilis and alcoholism, I will make but passing reference, but will offer for your consideration a report of some work done in our laboratory for the past few years with reference to the bacterial origin of the disease.

About four years ago Ford Robertson called our attention to an organism, diphtheroid in nature, which, to a certain extent in its cultural and morphological properties, resembled the Klebs-Loeffler bacillus, which has since been termed the *B. paralyticans* and undoubtedly exerts a pathogenic effect in this disease. I wish to state here that we have been able, in a great many instances, to confirm his observations and to add considerable evidence in support of the theory.

Our observations have been confined to the examination of cases of paresis during life; they comprise examination of the blood, the cerebro-spinal fluid and the respiratory and alimentary tracts. During the congestive seizure in five cases, from blood taken from the basilic vein we have isolated the *B. paralyticans*. In three cases pure cultures have been found.

From the cerebro-spinal fluid of 62 cases of paresis, we have isolated the *B. paralyticans* in 70 per cent of the cases. In several of the cases the recovery of the organism was repeated. In four

cases, the only contaminating organism present was a diplococcus, which grew poorly.

In conjunction with the above, 30 cases of different types of insanity and various nervous affections were examined and we failed to find this particular organism in any case.

From the respiratory tract, we have isolated the *B. paralyticans* in 95 per cent of the cases and in less than 2 per cent of the other insanities. The possibility of these latter cases being incipient paretics must be considered. In the stomach wash from 14 paretics, who were fasting for twenty-four hours, 11 cases contained enormous numbers of bacteria, the *B. paralyticans* predominating.

As stated before, the cultural and morphological properties resemble the Klebs-Löffler bacillus, being diphtheroid. This group is quite extensive, having been thoroughly studied during the past few years by different workers with respect to virulence and broth reaction. The results tend to show that this group is of far more importance than has heretofore been acknowledged and demands our further study.

We believe, however, in the differentiation and study of this species of organism; there are at least two types which are of some importance and undoubtedly bear a relation to paresis. They can be readily differentiated by cultural methods and tests of virulence on animals; this, with additional evidence, leads us to regard it as a special bacillus.

We have employed for experimental purposes the white rat, dogs and goats, all of which, within a certain period following inoculation, presented characteristic symptoms varying from drowsiness, stupor, muscular irritability, ataxia, reeling and stumbling gait, partial paralysis, to congestive seizures and death. Examination of the brains of a goat and two dogs revealed cortical changes closely resembling those seen in early cases of paresis. In two instances, the organism having been recovered from the vein of a case of paresis during a congestive seizure, was inoculated into dogs. In a few weeks' time, the dogs developed varying symptoms, finally hemiplegia, and lay in a moribund condition for several days, finally dying in a long congestive attack. In one instance, during a seizure, the organism was recovered from a vein of a dog and successfully grown again.

We have employed only two types of the organism in experiments on dogs, relying more particularly upon the reaction to the different broths. We note marked difference in their virulence and we believe the long, thread-like form of the organism to be the more virulent.

We would state further that the virulence can be raised by passage through dogs, or by growth upon a culture medium we have recently devised containing a certain percentage of cerebrospinal fluid. Corresponding to the different forms of the organism, an infection by either form would lead us to look for different types of the disease assumed. We undertook to ascertain if this might not be true and made application of an ophthalmo-reaction, similar to that used in tuberculosis, using a solution made from each type of the bacillus. While we obtained well-defined reactions in five cases, we were unable to state definitely which type of the organism was the infecting agent. The possibility of protecting animals by means of an anti-serum was tried. Two dogs were inoculated with cultures of the *B. paralyticans* and simultaneously one was given an injection of the supposed anti-serum obtained from an immunized goat. The dog failing to receive the serum showed marked effects of the bacterium, while the one receiving the serum in a while became docile and did well. The experiment was repeated twice, and upon different dogs.

Ford Robertson thinks that possibly, as a source of the infecting agent, there are more or less extensive foci in which the pathogenic bacilli are invading the tissues and pour their toxic products into the blood stream. He has obtained histological evidence of the presence of such foci in the alimentary, respiratory and genito-urinary tracts. We noted, in five cases, extensive necrosis of the superior maxilla. All conditions were extensive, severe, and caused death in a short time.

In our X-ray pictures of the teeth and jaws of a large number of cases of paresis, we noted multiple abscesses of the roots, in an area about which, there were distinct pockets of pus found, while in quite a few of the cases, we were able to isolate diphtheroid bacilli in connection with a few pus-producing organisms. We believe such conditions as the above-noted foci play an important part in furnishing toxic products to be poured into the

blood stream. Sometimes the micro-organism finds the body illy adapted to unrestricted growth and is able to grow and multiply only locally. Under such conditions, however, its effects may not be entirely local but general, causing destruction of the cells of a remote organ such as the brain (or nervous system), through toxic products carried through the circulation. This is beautifully illustrated in diphtheria, where a growth of the diphtheria bacillus, limited to the mucous membrane of the throat, is succeeded by the absorption of a poison, which brings about a degeneration in the nervous and other tissues.

This view harmonizes with the more recent experimental observations of Orr and Rows, who have demonstrated that tabetic lesions can be produced by the absorption of toxins passing up the lymph stream in the sheaths of the spinal nerves, both anterior and posterior roots, along the numerous septa, leading into the white matter. They were also quite certain that lesions could occur in this way in paresis. On the grounds of their observations, they definitely applied the lymphogenous theory of infection to paresis. While we are not wholly satisfied as to the infective foci in the region of the respiratory tract, we believe that strict attention to hygiene of the mouth in some of these cases will prove of some help. A disease of this kind, with its progressive nature, with its multiplicity of symptoms and viscera involved, we were lead to regard as systemic in nature. This view was corroborated by a study of the opsonic index. The opsonic index in paresis presented marked fluctuations, almost daily in some cases, and covering a wide scale, such variations in the opsonic content of the blood-serum being wholly due to the out-pouring of bacteria from some focus in ill-adjusted doses, and at inappropriate times.

With such evidence before us, and our chief aim being a therapeutic one, we resorted to the injection of vaccines made from the *B. paralyticans*, isolated from the patient and injected under the guidance of the opsonic index. Following each injection there has been a marked reaction constituting a negative and a positive phase, disclosing itself in a clinical picture of a mental and physical disturbance. The results obtained by vaccine therapy were read at the last meeting.

In order to successfully carry out the vaccine treatment, it is necessary that the bacillus be isolated from the patient and each injection given under the guidance of the opsonic index. This involving a great amount of labor, with so many under treatment, we resorted to the use of anti-serum as a plan of treatment.

In the beginning of our observations, thinking that possibly the *B. paralyticans* might be an attenuated form of the Klebs-Löffler bacillus, we began the use of an anti-diphtheric serum in a few cases with no results. We then determined upon the manufacture of a bacteriolytic serum directed against the two types of the *B. paralyticans*. Accordingly we selected sheep and goats for immunization, they being at first inoculated with dead cultures of the *B. paralyticans*. Following this, living bacilli were injected at intervals, using the opsonic index as a guide as to dosage and time to inoculate. Accordingly, after three months' time and after the animals failed to show any further reaction to injection, they showed progressive gain in weight, the opsonic index reached 75-80, the blood serum showed the presence of an agglutinin and without exception favored phagocytosis of the *B. paralyticans*.

We then decided that the animal was immunized and it was decided to use the serum. The serum was given to some cases by the mouth, in others it was injected. In all the cases of paresis, following injection, characteristic symptoms arose. First, slight mental and physical disturbance occurring within the first twenty-four hours; rise of temperature to 100-101, which is not noted in non-paretics; no leukocytosis, while in non-paretics a slight rise in leukocytes is noted. These points have been utilized in 10 cases for diagnostic purposes and the same characteristic reaction has been noted. This reaction could not be confused with serum disease, as the reaction occurred within the first twenty-four hours, while it requires from seven to nine days for serum disease to appear. Urticaria occurred in a majority of the cases.

With reference to the cases under treatment, seven cases were treated alone with vaccine. Of this number, three have shown remarkable improvement, two have gone from the hospital in excellent mental and physical condition, have been away nine months and have taken positions. The last reports from the relatives state that they are doing well. A woman, at present in the hospital, is rapidly approaching a remission. The remaining four cases show

but slight improvement mentally, although there has been considerable physical improvement.

We have now remaining under treatment 10 cases and with this group we have resorted to our anti-serum combined with vaccines. We believe this plan of combined active and passive immunization gives better results than anti-serum alone or vaccine alone. We believe the anti-serum prevents the undue depression which usually accompanied the negative phase.

At first we resorted to saturating the anti-serum with vaccines to a certain point and making one injection. We, however, found that in quite a few of the cases abscess-formation occurred at the site of inoculation. We were forced to suspend such a procedure and now inject vaccine about every eighth day, while anti-serum we inject sometimes twice weekly. With this plan of treatment, five have shown remarkable improvement, three are at present in a remission, two are rapidly approaching such a condition, while the remaining show varying degrees of improvement.

Briefly summarizing, we are led to believe that the disease is a bacterial infection and that the *B. paralyticans* is the specific etiological factor, as evidenced by the experimental inoculation of animals with material obtained from cases of paresis and the successful production of a train of symptoms and the pathological picture similar to that seen in paresis. The protection afforded animals by the use of a bacteriolytic serum, lends color to the fact that an anti-serum will undoubtedly play an important part in the treatment of this disease. This fact, we believe, is further corroborated by the improvement noted in the above cases. Out of 18 cases under treatment, eight have shown considerable improvement. At present we believe the combined treatment to be most effective.

DISCUSSION.

DR. H. A. COTTON.—I should like to ask a question in regard to the *Bacillus paralyticans*, whether Dr. O'Brien has tried to isolate this bacillus in cases other than general paralysis? It seems to me it is very important. I do not remember that he mentioned it, as the experience of others shows that this bacillus can be isolated in other diseases.

Another question is in regard to finding *Bacillus paralyticans* in the cerebral spinal fluid. I might say that last summer Dr. Gay, an expert bacteriologist, made cultures of the cerebral spinal fluid of some hundred

cases, including all psychoses, and practically all of the cultures were sterile.

Another question I should like to ask in regard to the cases of Dr. O'Brien reported last year: I should like to know what has become of those cases that showed such marked improvement under the treatment.

DR. O'BRIEN.—With reference to the cases under treatment, two of them have been out eight and one-half months, doing very well, at present both holding clerical positions. Two more are ready to go from the hospital. In the remaining four the condition is stationary.

In reference to finding the bacillus in cases other than general paralysis, in the cerebrospinal fluid, in 62 cases of paresis we isolated the organism in 70 per cent of the cases. We examined other types of insanity at the same time, examining the cerebrospinal fluid in allied nervous conditions, epilepsy, Huntingdon's chorea, and we failed to find the organism in any case.

DR. LANGDON.—Did I understand you to say you found the actual organism in the cerebrospinal fluid or in the cultures from the cerebrospinal fluid?

DR. O'BRIEN.—In one or two instances we found the organism in filaments in centrifugal urine, while in other cases we found them in pure growth.

DR. PACKARD.—After Dr. Southard's very excellent paper, which, covering a much larger field, incidentally dealt so well with the subject of the relation of general paralysis to bacteria, it would hardly seem necessary to make further comment. However, I believe that this is the third consecutive meeting of the society at which papers have been read to the effect that general paralysis is caused by a specific organism and on each occasion the papers have been passed by with little or no critical comment. I was somewhat surprised at a recent visit to England to find that this was being interpreted as meaning that the work of Dr. Ford Robertson was accepted by this society. I believe that there are many who are yet unwilling to accept his conclusions, and feel that we ought to be on record to that effect. As you doubtless know, Dr. Robertson has for some years been working upon the bacteriological etiology of general paralysis. However good his work may have been in many ways, his conclusions were not generally accepted, but since he nevertheless persisted in maintaining his conclusions, there was finally done in Dr. Mott's laboratory some check work. The report as a whole can be found in the Archives of Neurology, Vol. III, p. 376. One hundred and thirty-eight cases were examined, 60 being general paralytics, and 78 other forms of insanity. I will only take the time to read the conclusions drawn from this work.

"As the results of our observations we would formulate the following conclusions:

"(1) That the percentage incidence of all "diphtheroid" organisms in the throats of the insane (17.3 per cent) is not in excess of that noted in the same population (18.5 per cent) outside the walls of an asylum.

"(2) That the percentage incidence of genuine *B. diphtheria* (5.07 per cent) in the throats of the insane is smaller still (a large proportion of the diphtheroid organisms noted were common saprophytic members of the diphtheria group of bacilli), and compares well with 6.9 per cent in the healthy sane.

"(3) That there is no evidence to show that *B. diphtheria* is more common in the throats of general paralytics (5 per cent) than in the throats of cases of other forms of insanity (5.1 per cent).

"(4) That the number of general paralytics examined post-mortem is too small to enable any definite conclusions to be drawn therefrom. At the same time, it is a significant fact that *B. diphtheria* was not isolated from any of these cases.

"(5) That the majority of the strains of *B. diphtheria* isolated from the throats of the insane are of low virulence and slight toxicity, and so compare in these respects with the types found occasionally in the throats of the healthy sane.

"(6) That having due regard to the above conclusions, we are unable to trace any causal connection between *B. diphtheria* and general paralysis of the insane."

DR. LANGDON.—I regard Dr. O'Brien's work with a great deal of interest, and we in Ohio take a pardonable degree of pride that he has had the initiative and courage to carry it on so thoroughly and satisfactorily. No one claims, however, that he or Ford Robertson has settled the subject.

As the President remarked in his address, we must keep working along in the right direction. We all know that the heretofore alleged causation of paresis is insufficient; and we all see cases in which the alleged causes, alcohol, syphilis, overwork, dissipation, etc., are absent. It will occur in the absence of those conditions, so that there are a number of cases to elucidate which none of the alleged causes will properly account for.

I do not feel qualified to speak upon this subject from the bacteriological standpoint. My connection with that feature of the work has been chiefly that of director or suggestor, so to speak. I regret very much that our pathologist is unable to be present this afternoon, but I will simply say that from the time of the first publication of Dr. Robertson's experiments and investigations, I have followed the literature as well as I could through his writings and those of others. We have at the Cincinnati Sanitarium a limited amount of material, and we labor under the disadvantage of not having opportunities for autopsies, ours being strictly a private institution.

To sum up our observations to date, we find the organisms described by Ford Robertson a bacillus which is not the diphtheria organism; it is

referred to distinctly by Robertson as *diphtheroid*. It is a bacillus which is non-pathogenic to vegetable-feeding animals. It is harmless, for instance, to guinea-pigs and rabbits. On the other hand, it destroys rats, mice and meat-feeding animals, which are immune to the true diphtheria bacillus. We cannot, therefore, speak of the diphtheria bacillus and the *Bacillus paralyticans* as the same thing. I emphasized this because using the term diphtheroid may cause confusion. I would also say that we do not look for and expect to find it in all the lumbar punctures, or in the blood, or in the bronchial or mucous membranes. If you will make a culture on blood serum and agar, of a suspected secretion, in twenty-four hours or less you can satisfy yourself as to the existence or non-existence of the *Bacillus paralyticans*. It is not a difficult organism to culture through half a dozen generations.

With our investigations practically limited to a centrifuge deposit of the urine, we find at times pure cultures. We have found them in seven cases out of eleven. In one case we found it in the cultures from cerebral spinal fluid; in another case in the mucus removed from the urethra.

Now as to its significance there is no question about its being a distinct organism from that of diphtheria, if we may take the word of bacteriologists for it. I do not think for the present purpose the question can be raised as to whether the discovery is of value in a therapeutic sense. It was a long while after Koch fixed the etiology of tuberculosis before anybody successfully approached the subject from the therapeutic standpoint, and we all know that we have not caused the disappearance of tuberculosis yet. Undoubtedly the discovery of the cause is the first important step to the elimination of the disease, but I think we are trying to get ahead too far when we wish practical results immediately upon the discovery of the cause. From my standpoint I would say of these investigations, their importance at present consists in this: If we can find in a certain proportion of otherwise doubtful cases an organism which will enable us to make a diagnosis, it is an exceedingly valuable discovery. Twice within a year I have had occasion to at least feel a little more firm on my feet in the question of diagnosis by reason of the presence of the bacillus; and such diagnosis has been confirmed by the subsequent course of the disease.

To sum up, the presence of the *Bacillus paralyticans* of Robertson appears to be an exceedingly valuable corroborative point in the diagnosis. I should not feel satisfied in dismissing a doubtful case and saying he did not have paresis unless I could exclude it. If we were to compare the two I should feel that its presence is as important perhaps as the Argyll-Robertson pupil, which, as we all know, is variable and which does not occur in every case in the first year or two. Of course the bacillus is corroborative evidence of an entirely different class and order. It is an exceedingly interesting matter and I do not think sufficient attention has been paid to it in this country. I have been very much gratified that Dr. O'Brien has continued his investigations. I think they reflect credit not only upon the

institution with which he is connected, but upon the medical profession of Ohio, which may take a pardonable pride in having this advanced work done by one of our confrères.

DR. O'BRIEN.—I do not believe I have anything further to add to what was contained in my paper. I would like to state that Dr. Marie has recently taken up the work. He has been working on it for some time, and in a recent letter to me reports upon the work he has been doing with the blood serum of general paralytics, particularly opsonification of the *Bacillus paralyticans*. He has confirmed Dr. Robertson's work and the work I have done myself. I have nothing further to add.

DR. E. E. SOUTHARD.—In discussion of Dr. O'Brien's paper, I wish to say some words of praise as well as some of dissent.

We must naturally all agree with Dr. Langdon that research work in bacteriology is of the highest importance in psychiatry. Germany and France are decidedly less alive to the importance of such work than are the English-speaking countries. The work of Lewis Bruce, of Murthly, and that of David Orr, of Prestwich, show what may be done with this modern point of view. The stimulus to this sort of work by Scotchmen has come in large measure from Ford Robertson, who from sound and modern work has drawn conclusions with which many of us are disposed to quarrel.

The conclusion drawn by Ford Robertson, and concurred in by Drs. O'Brien and Langdon, that certain organisms of the diphtheroid group cause general paresis of the insane, seems to many of us a premature conclusion. But dissent from Ford Robertson's etiology need not imply impeachment of his facts.

The crux of the matter seems to me to lodge in the fact that intercurrent bacterial infections—bacteriemias, "low grade septic conditions"—are far more frequent in the insane (as well as in the sane) than we had been taught to surmise. Low grade sepsis intervenes in general paresis with considerable frequency, by reason of atrophic processes in stomach and intestines.

It seems probable that diphtheroid organisms occur in paretic tissues under some circumstances at some institutions at certain times. The polemical work of Eyre, at Guy's Hospital, is familiar in this connection. Marie, of Villejuif, has recently confirmed the intercurrent hypothesis. In 1904-1906, Dr. L. Hoag found diphtheroid organisms in both paralytics and non-paralytics at the Danvers Hospital.* Dr. Hoag desires to present later certain data concerning the relation of a special diphtheroid organism to bronchopneumonia. In our recent work at Danvers, Dr. Gay and I have not obtained diphtheroids frequently, though it must be admitted that

* "Organism X," etc. L. Hoag. Boston Med. & Surg. Jour., 157, 1907. pp. 10-14.

our cultures have been limited to the blood and cerebrospinal fluid and have not been extended to the more ambiguous fields of the bronchi, the intestines and the urethra. The lack of accord between our results and those of Hoag just previously in the same institution is striking. The explanation must wait till more is known of epidemiology.

I may recall from the paper just read (Gay, Richards, Southard, *The Bacteriology of One Hundred Autopsied Cases of Mental Disease*, etc.) that the blood yielded organisms of various sorts in 64 instances and that the cerebrospinal fluids yielded organisms in 75 instances. Fifteen of these cases were general paretics, but no special bacteriology was discernible in these cases. With respect to the relation of cerebrospinal fluid to bacteria, Dr. Gay has shown (and will shortly publish in the Proceedings of the Society for Experimental Biology) that the cerebrospinal fluid of normal persons, whether in life or post-mortem, fails to contain that substance, the alexin, which is essential in bacteriolysis. With respect to the path of infection, Dr. Richards and I have to offer some instances of infection of the cerebrospinal fluid and mesenteric lymph nodes with the same organism where the blood was sterile. One case was that of a parietic dying of typhoid meningeal infection; the mesenteric lymph nodes also contained the *Bacillus typhosus* in pure culture; but there were no intestinal lesions of typhoid fever. Another parietic, a juvenile case, showed similar relations, except that the organism engaged was *Bacillus coli communis*.

Of course, much work remains to be done to establish the frequency and importance of intercurrent bacterial infections. The matter is of the highest interest in medicine at large. The problem of general paresis is small by comparison with the field that Dr. O'Brien's work touches. If O'Brien can cure bacteriemias by the means described, or can even clear the respiratory, intestinal or urinary tracts of diphtheroids or other organisms by such means, an extraordinary future is in store for us.

As for the immediate outlook, it must be confessed that the diphtheroids form a very dubious field in bacteriology. The frequent occurrence of these organisms on the skin and in the urethra under some circumstances should lead us to hesitation before assigning diphtheroids a causal rôle in remote lesions.

The most complete data should be published with these cases, embodying all diagnostic points. It seems to me exceedingly dubious whether the finding of diphtheroid organisms in centrifuge deposits in urine is of diagnostic importance.

PSYCHIATRY AS A PART OF PREVENTIVE MEDICINE.

BY HENRY M. HURD, M. D., BALTIMORE, MD.

The object of preventive medicine being to lessen the burdens of mankind by obviating preventable diseases, it is deemed appropriate at this time to inquire in what manner the experience of those who are familiar with the problems of psychiatry may be utilized to assist in this good work. It needs no elaborate demonstration to show the evils of insanity and the heavy public and private burdens which it entails upon every community. Next to alcoholism it is probably the most potent cause of pauperism and dependence. Where the State does not promptly interfere to lift the burden of the support of a patient suffering from chronic insanity in a family of moderate means, whether inside or outside an institution, the tendency of that family is to poverty. Every person who has had even moderate experience in the care of the insane can recall instances where the expense attendant upon the care of such a person has eventually proved the ruin of the whole family and has brought its members to poverty, if not to the almshouse. In addition to this somewhat material view of the effects of insanity, it is proper to mention a still more important factor, the distress and sorrow which fall upon the other members of the family and too often the influence of the insanity of one person upon susceptible sons and daughters, brothers or sisters. It is therefore important to make use of the experience of alienists to prevent the spread of insanity and to check its development among persons who have inherited or acquired a predisposition to mental disease. Alienists being as a rule isolated workers, unless there is some concerted action on their part elicited by a loud call for help from the whole community, it is doubtful whether they will accomplish much. How then can this call be voiced, and in what manner can the experience of alienists be made available for the public welfare when such experience has been gathered?

Much can be accomplished by informing the public fully of the true nature of heredity. The knowledge should become universal that every individual represents the sum total of the vices and virtues, faults and perfections, strength and weaknesses of his remote ancestors, plus special morbid conditions or otherwise which existed among his immediate progenitors. In the question of marriage, education and occupation, the consideration of heredity seems forgotten or wholly ignored by the majority of people. People with neurotic heredities marry; they bring neurotic children into the world; they educate them faultily and in such a manner as to add to their neurotic inheritance; they allow them to choose unsuitable employments; and finally their children develop in their turn insanity. Much of the faulty educational methods at the present day springs from false ideas on the part of parents, and even teachers, of the value of knowledge as knowledge and not as a training of the powers. It is not sufficient for neurotic persons to acquire knowledge alone; they should acquire with it a discipline which will help them to overcome the morbid and vagrant tendencies which spring from a neurotic organization. They should be trained to use their mental powers judiciously, to strengthen their wills and to build up their physical energies. They should learn that the process of education is not a cultivation of the memory merely, but a training of all the powers of mind and body. The neurotic individual cannot with safety be subjected to the educational methods which may apply to the healthy-minded. His training should not be so much stimulating as inhibitory. It should teach him to resist morbid impulses and to forego artistic pursuits and cultivate prosaic virtues and commonplace aims. Where a pronounced tendency to mental disease has been inherited, it should be borne in mind that this tendency cannot be eradicated, because the roots of the disease are deeply laid, and further because the individual may represent the defects of several antecedent generations. The neurotic individual can be more easily helped by proper education than he who has inherited a tendency to insanity. A notoriously bad stock will eventually exhaust itself and run out. Psychiatry therefore should concern itself largely with questions of education. The prevention of insanity may be beyond us, but the proper educa-

tion of the neuropath is always practicable. The object of education in this instance should be the formation of stable habits and the production of character. In every school the scholars in attendance should be most carefully inspected and special educational methods should be devised for individual scholars. Education can never be a wholesale dealing with children, and every attempt to train children by wholesale or *en masse* is foredoomed to failure. Education and mental training, on the other hand, to be effectual must be applied to the individual and should be suited to his needs. The fact that many neurotic children are precociously bright, quick to imitate and often quick to learn, leads parents and teachers to stimulate them to acquire knowledge from books and to omit the practical side of their training. They should rather have manual training and learn to associate knowledge with ability to do something. They should realize that precept must be interpreted in terms of conduct. They must be drilled in routine methods until their wills become automatic, and orderly conduct and orderly thinking a second nature. Education as simply the acquisition of knowledge is more harmful than beneficial to such persons; education as a training of body and mind for systematic orderly living is what they need. Hence the first requisite in any attempt to arrest the development of the neuropath into the psychopath must be the careful supervision of all scholars in the public schools by a trained expert in psychiatry. He should consult with teachers and make suggestions to them respecting any scholars requiring special care, and they should report regularly to him any scholars who attract attention by reason of any abnormal conduct. In my experience it has happened repeatedly that cases of pubescent insanity have developed in schools under the eye of teachers who were blind to symptoms which would have been apparent to the merest tyro in mental disease. The formation of idle, pleasure-seeking or dissolute habits on the part of neurotic persons is most injurious. The gospel of systematic orderly work for such persons under skilled direction needs to be preached to parents and teachers constantly until they are compelled to listen to it. I cannot say that an attempt to enforce such precepts by sound advice has ever met with a cordial response from those who ought to listen to it. Parents and teach-

ers are generally unwilling to receive the unwelcome disclosure, or if they accept it for a little time, they soon gladly embrace an opportunity to depart from it. Still we should not for this reason neglect to make a strong and concerted effort as an Association to warn the public of a proper remedy for these evils.

The education of the backward child also should be conducted under skilled direction and the feeble mental energies of the individual should be fostered and developed by a well-considered training, instead of being destroyed by a vain effort to fit them into the activities of normal and healthy-minded children. The competition of the defective child with the normal child is disastrous to the former and results in a condition of hopeless inferiority. If such children could be judiciously trained by skilled and sympathetic teachers, a wall of habit could be built about them which would very effectually resist ever-present tendencies to mental degradation and enable them to live useful and happy lives, instead of degenerating into criminality, vice and misery, as too often happens.

The need of expert advice upon the question of marriage with neuropaths or persons who are hereditarily inclined to insanity, is also of extreme importance, but unfortunately it is beset with many difficulties and the possibility of any effective solution is very remote. Marriage is not a question of the head, but of the heart, and any attempt to control it upon a common-sense basis seems hopeless. I have rarely been able to gain the ear of a young man bent upon matrimony, and any advice given to him has generally been thrown away. I mention the topic, however, as one which should receive more careful attention on the part of educated men. One who has had an ordinary education and training should have learned the salient facts in reference to heredity before he reaches a marriageable age, and if he wilfully transgresses, he cannot have the excuse which I have heard offered so many times for such unfortunate marriages—an absolute ignorance of the danger.

I now come to the practical application of this paper, *viz.*: How can the teachings of psychiatry be made more effective in the prevention of insanity? In reply to this inquiry, the experience of those philanthropists and reformers who have labored for many

years to combat the ills which are universally recognized to follow the unrestrained use of alcoholic beverages is of much value. In England, Canada and the United States a strenuous, concerted and wide-spread effort has been made to enlighten the public as to the harmful effects of the occasional or habitual use of alcoholics, either as a beverage or as a substitute for food. Granting that this effort has not always been wisely directed and even that in many respects it has been fanatical and lacking in proper proportion, it is none the less true that it has exercised a mighty influence, especially upon the young, by reason of the teaching given in the primary and secondary schools upon the physiological effects of alcoholics upon the human organization. In the United States at least this teaching has unquestionably been a potent factor in the enactment of stringent laws to regulate the sale of intoxicants, culminating in several States in the absolute prohibition of such sale. The origin of this movement has been in the school, where children have been taught rightfully (or wrongfully, it may be) that alcoholism is an important factor in the production of the degenerate, that alcohol is never a necessity to a healthy body, that its use is hurtful to the growing tissues of the child and that even when manhood and womanhood are reached, the quantity which can be tolerated by the system may be easily exceeded. If such instruction be effective in the matter of temperance in the use of alcoholics, should not an effort be made to extend it to those subjects which have a direct bearing upon mental health? In this connection the following extracts from regulations as to instruction given by the English Board of Education are most suggestive. One paragraph says:

The instruction should be specially directed to the inculcation of courage, truthfulness, cleanliness of mind, body and speech; the love of fair play; gentleness to the weaker; kindness to animals; temperance; self-denial; love of one's Creator and appreciation of beauty in Nature and Art.

Also:

The object of teaching being the formation of character and habits of life and thought, an appeal should be made to the feelings and personalities of the children. Unless the natural moral responsiveness of the child is stirred, no moral instruction is likely to be fruitful.

Still another paragraph admonishes the teachers :

To teach the children to fit themselves practically as well as intellectually for life. . . . To instruct them in the working of the simpler laws of health . . . to lay the foundations of conduct, to impart habits of industry and self-control, to help them to become upright and useful members of the community in which they live and worthy sons and daughters of the country to which they belong.

I would then say first of all an effort should be made in all teaching in the schools to follow the laws which govern the healthy development of children and to teach those things which make for mental health. All teaching should be more thorough, even if fewer subjects are taught, and it should not be confined to the acquisition of such knowledge as will fit one only to acquire money or to get on in the world. It should rather teach children the art of healthy, happy living and inculcate such ideals as will help them to grow up to be useful members of the community. It should teach them what to seek after and what to avoid; they should know the laws of mental health and the peril to mental integrity which lurks in any form of vicious indulgence. They should not remain ignorant of the venereal peril, of the evils of unrestrained indulgence of appetite and passion and of the prime importance of orderly living and moral cleanness. The whole instruction of the school should have a pronounced moral trend and an ethical purpose. This instruction should also include the rational doctrine of the dangers of the use of alcoholics and their effects upon the human system.

Another important agency which should be employed is the utilization of the work of the "Committee of One Hundred" to spread abroad similar information in the newspapers. The object of this committee is to proclaim a knowledge of the laws of health, and to teach by a system of non-technical essays in the public prints how to live healthily and to avoid and prevent disease. The work is well organized and should receive the hearty co-operation of all alienists.

A third method is through the wider diffusion of the special reports issued by the medical superintendents of state institutions for the insane or defective classes. Many of these hitherto, while well-written and very suitable for the general instruction of the people, have failed to receive a wide circulation and have too often

been buried in the document rooms at state capitols or bound up in bulky legislative documents which nobody reads, because of the wilderness of statistics and tabulations through which one must wade to reach the report. Extracts from these reports should be scattered broadcast among the people, to the end that their attention may be directed to the essentials of healthy living and the preservation of mental health.

A fourth method, probably the most effective of all, should be a better recognition of psychiatry in the curriculum of every medical school. To-day physicians are as a rule imperfectly informed as to the early detection and the need of expert treatment of mental disorders. This is almost wholly due to the fact that sufficient practical instruction is not given in the medical schools. It is not sufficient to listen to a few didactic lectures on insanity, or even to see at a safe distance certain types of mental disease. There is the same need of careful, systematic and well-arranged clinical instruction in mental disorders as in other bodily diseases, and this should be given in the wards of a psychopathic hospital, where the student must be brought into personal contact with the multifarious forms of insanity until he learns how to recognize and to treat them. He also should know what are the danger signs in school children, and should be mentally equipped to give wise advice to parents and teachers. The relation of the family physician to the growing family is such that he is inevitably consulted first whenever children display symptoms of failure under ill-considered and injudicious stimulation in school, and yet how often in practice does he belittle the danger or disregard the warning signs, not wilfully, but from an optimism born of imperfect knowledge and a desire to shut his eyes to a painful truth. Until the psychopathic hospital is organized at every centre for medical teaching, the full co-operation of the general practitioner in this branch of preventive medicine cannot be secured.

To recapitulate:

Information as to the true nature of heredity and its influence upon questions of education, occupation and marriage should be given to the public freely by alienists.

Good can also be effected by correcting false educational ideas as to the value of an education as knowledge, rather than as a

training of the powers. Neurotic persons should acquire discipline as well as knowledge, and should strengthen their wills and increase their inhibitory powers by special educational measures. The prevention of insanity is best secured by a proper education of the neuropath in the public schools under expert direction and skilled medical care. The object of such education should be to develop character and stable habits of living. The evil of the formation of idle, pleasure-seeking and dissolute habits by neurotic persons should be made known to all parents and teachers. Even the Harry Thaws would not be a menace to the welfare of society if they were carefully, judiciously and properly educated.

The education of defective and backward children also should not be neglected, but should be conducted under skilled direction to prevent them from degenerating into criminality, vice and irresponsibility.

Expert advice upon the question of marriage with neuropaths or other persons hereditarily predisposed to insanity should be sought, and when honestly given should be more generally acted upon than it is. At any rate no one should plead ignorance of the risk of contracting such marriages.

The methods of rendering the teachings of psychiatry more effective to prevent disease should be:

1. To instruct children in the schools the art of healthy and useful living. Teaching should be more thorough and not restricted to fit one to get on in the world, but rather to inculcate ideals which will give him a conception of the prime importance of self-control and moral rectitude. It should also include a knowledge of the dangers of immorality and intemperance.

2. To use the newspapers and the special reports of officers of institutions for the insane and defective classes to scatter broadcast a knowledge of the laws of bodily and mental health and the best means of preventing the development of mental disorders.

3. To give a better recognition of psychiatry in the curriculum of every medical school, so that physicians may become familiar with the diagnosis and treatment of insanity. To this end psychopathic hospitals should be established to give clinical instruction, so that the family physician may recognize insanity, may be able to scrutinize carefully the mental condition of neurotic children and may give wise advice upon all educational problems.

PSYCHOLOGY IN RELATION TO PHYSIOLOGY, PSYCHIATRY AND GENERAL MEDICINE.

By WESLEY MILLS, M. A., M. D.,

Professor of Physiology in McGill University, Montreal, Canada.

Most physiologists twenty years ago would have been astonished, and possibly some to-day, had they been charged with poaching on another realm of science apparently so far removed as psychology, yet the time has never been when it was possible to give any satisfactory treatment of "the senses," as the term was, without utilizing psychological material. Sensation, not to say judgment, is psychic, and physiological processes are but the essential concomitants of the mental—the state of consciousness known as sensation; yet the student looked on the whole process of vision, for example, as physiological, though in truth this was due to the fact that no one called his attention to the psychological aspect of any subject whatever; so that what was taught by the Chair of Physiology was to him physiology, though really a mixture of several sciences. Nor do physiological text-books, even at the present day, as a rule make any sharp distinctions as to what is physiological and what purely psychological. Such neglect cannot be charged to the writers of works on psychology, who have done perhaps more than physiologists to advance us in our knowledge of the senses. But this has in certain quarters told on physiologists and they as well as those with whom they should ever be in close touch, the psychologists, are beginning to realize that for better and for worse the whole subject of sensation deserves the closest study of those who are to deal with the sick as with the well—the abnormal as well as the normal.

One has come to realize to some extent at least how great may be the bodily disorder that may result from the disturbance of that balance which constitutes health. But it is in the realm of mind—or as we would prefer to say, the psychic—that the greatest

revelations have come to us. The study of hypnotism, especially in France, and the work of a few independent thinkers and investigators directed towards hysteria, double personality and the various forms of psychic dissociation—even the attempt to penetrate occult regions, in spite of unthinking incredulity in many quarters—are bearing fruit. They have had an influence wide rather than deep as yet, it may be, but even the “busy practitioner” is beginning to ask himself questions that would never have arisen in the minds of those practising the healing art twenty years ago. This should be the case in America, perhaps more fully than in any other part of the world. Nowhere outside of Germany has psychological science been pursued by so many well-equipped men—in no country has it been so brought before the mind of the undergraduate student—and nowhere have more aspects of the subject engaged attention. No country has furnished a writer so original, so illuminating, and so happy in the literary form in which his thoughts have been clothed, as Professor William James. None has engaged a mind more suggestive or more profound in dealing with child nature than Professor Stanley Hall’s. His work on Adolescence is epoch-making and should exert a profound influence, if given a chance, on education, psychiatry, and the whole trend of modern thought in so far as it deals with the relations of body and mind.

We are beginning to realize—would that it were more general—that the education of a child is not to enable it the more easily to make its way in the world but to bring about its fullest development according to the laws of its being—laws which we cannot change. This development implies happiness because it makes appreciation of many things possible, and appreciation is possession, for *material* possession is only a condition and not at end. People begin to realize that the child as an individual has been lost sight of but that in the education of the future he must be found and found early. We owe these advances of such weighty moment in no small degree to psychology, and not least to American psychologists.

I would especially call attention to the work of that band of investigators headed by Professor Witmer of Philadelphia. He has made practical applications of this science to the study of

the individual child, both defective and normal, the key-note. He is a man in advance of his times and I can feel some degree of satisfaction that with him I advocated this cause more than ten years ago; but it has been for him to bring this conception to a fruitful issue. He would, as would I myself, have psychology deal with individuals of all classes, normal and abnormal, as we do with medical cases in a clinic, and his periodical "The Psychological Clinic" is one that must especially commend itself to every one whom I address to-day. The actual psychological clinic is not the same as the psychiatric clinic of the past, but rather indicates lines along which work in this direction may be done so as to be more scientific, better co-ordinated with other departments and more interesting and helpful to students.

The largest problem for scientific men to-day is, it seems to me, this: How is the work in one department to be made vital for another? How is one department and one university, or one set of investigators, to co-operate with another so that the energies of the scientific world may be utilized with the least waste and the greatest practical good to the world? There must be conjoint research with organizations to arrange this and to make the chief results known. More than fifteen years ago I advocated this as regards physiology before the American Physiological Society in a paper read at the Boston meeting, but not a single remark was made on that paper. But the world does move and in the year 1907 conjoint research in some departments became a reality. How the subject of psychology would advance if the psychologists and physiologists, to mention no others, could unite with the psychiatrists in annual meetings for the purpose of discussion and for arranging conjoint research. The psychologists, not a few of them, realize that they cannot neglect without loss to their science the study of the insane and other classes of the abnormal.

Every eminently successful practitioner of medicine has been through all ages a practical psychologist—a mind reader—but the average physician has dealt with man very much as if he were all body. He has been a materialist so far as his medical practice was concerned, to at least an unfortunate extent. And while he has been going his rounds, and doing his duty as he conceived it, others falsely claiming to be scientific have stepped in and taken

hold of what he left untouched, so far as any conscious, planned, enlightened method was concerned, and Christian Science and other kindred false sciences and charlatanry flourish by virtue of truths neglected practically by scientific men, the doctor included.

The physician must in future join hands with that other specialist, the psychologist, much oftener than he has done in the past. I can believe that each will have his office for consultation with the public and that the psychological doctor must have his place in society as well as he who specially treats physical ills, that they—these two classes—may often unite their best knowledge and wisdom for the good of the patient.

As a matter of fact the achievements of that master mind Kræpelin do indicate how many of the ideas I am advancing have been actually realized; and it is peculiarly fitting that this eminent leader should have here on this continent, where psychology has been so prominent, those who would imitate and attempt to rival him. Mere routine must not be allowed to continue to absorb all the energies of men capable of higher things. Governments will act if the people demand reforms. The public must first be enlightened and the question is, How is this to be best done rapidly and effectively? Enlightenment must first come to the great body of the profession, most of whom know little or nothing of such work as Kræpelin's. This knowledge can be brought to them through medical journals and in another way to which I now wish to call special attention. Every medical student is supposed to take a course of some kind in psychiatry and through this he can be made aware of the great advances of his time. The trouble is that the medical student is not and never has been in a position to appreciate a really high-class course in psychiatry as it should be to-day.

Before a man undertakes the study of clinical medicine he is supposed to understand a good deal of anatomy and physiology as well as much more, but for psychiatry he has been given no equivalent preparation. The anatomy and physiology of the mind are to him things unknown. In other words, before a man studies the abnormal he should be familiar with the normal, and in a practical way. This is recognized as regards ordinary clinical medicine—though not yet as clearly as could be wished—

and the order of the courses in a well planned medical curriculum bears witness to this. The misfortune is that the clinician is a little apt to forget, even yet, to remind his students that medicine is applied physiology, etc., to which he must now add applied psychology. Psychiatry deals with the disordered mind but the psychology of the normal mind is not yet taught to the student—in other words the student is called upon to study the abnormal mind in ignorance of the normal. It is clear to me that the medical student must now be taught psychology if our medical education is to be consistent and logical.

It may be said that the medical student is already a heavily taxed individual, and it is clear that we must lengthen our courses to keep pace with the wonderfully rapid advances of our time. In what profession is knowledge advancing with anything like the rapidity that characterizes medicine? We may also be called upon to somewhat diminish in the meantime the amount of time given to the technical study of certain subjects, such as bacteriology, and other departments, possibly, of pathology. This would not be so desirable as lengthening the period of time given to the whole medical course; but that the study of the half of the man and that the better—let us hope the immortal part—cannot be neglected in the future as in the past without great detriment, is to my mind clear. The present state of things is an anachronism.

The addition of psychologically trained experts to the staffs of asylums is a most hopeful sign, for surely they are as necessary as the pathologist, especially when the latter deals chiefly with morbid anatomy. Morbid anatomy profiteth little these days—it is physiology that quickeneth, using the term physiology in a wide sense; but of equal or greater importance is psychology. The fact is the investigation of each case calls for the best that each of the medical sciences, including in these psychology, can supply.

Occasionally those who advocate changes and reforms, in spite of their enthusiasm and the belief that they are as a voice crying in the wilderness, get surprises. In a recent report of a Committee of Psychologists on the Training of Nurses, one finds this statement: "Nurses should have some knowledge of the body with which they are concerned in the general nursing of all dis-

eases, and of the *mind* (italics mine) to which they minister in cases of nervous and mental diseases"; and "psychology" is placed among the studies prescribed in a course for nurses that is supposed to be capable of practical realization. It might with advantage be prescribed for all nurses. They would be thereby more interested in the individual patient as a study and more efficient generally. To direct the attention of a nurse or any woman to laws rather than to isolated facts is to help her to rise above that tendency to disjointed thinking and to dwelling on the merely personal which is an admitted weakness of the sex.

But if psychology be good in nursing how much more is it desirable for the higher work of the physician?

To put the whole matter briefly: The time has come when the physician should be a psychologist—when the physiologist, the psychiatrist and the psychologist at all events, perhaps also the general practitioner, should unite for joint discussion and research and when psychology should become part of the curriculum of every medical student. Such co-operation would add to the importance of each of the specialties associated and greatly advance the well-being of mankind.

In conclusion I would thank the Society for the kind attention I have reason to believe will be given to this contribution; I only regret that I cannot be present to listen to the many valuable papers to be read at the meeting and the discussions to which they will give rise.

DISCUSSION.

DR. C. K. CLARKE.—I am sure I heartily concur in everything Dr. Mills says. I know from my own experience in teaching psychiatry that the student who has had the advantage of training in normal psychology far more easily acquires an insight into the study of psychiatry, and grasps the subject more intelligently. I think this is a very important point, and we should lengthen the course in psychiatry taken by pupils in colleges or universities.

Another need is the building of psychiatric clinics in university centers, and the co-operation of the professors in normal psychology with professors in abnormal psychology. It seems to me that professors of normal psychology will approve of such a course as much, if not more, than the professors of the abnormal. I am satisfied that such co-operation will result in the importance of psychology being even more appreciated than at the present time.

DR. TUTTLE.—So important a matter as that presented by Dr. Hurd ought to be discussed. It is one of the most important presented to this association in recent years. I should certainly agree with him that there must be a campaign of education. The medical student, as a rule, gets little instruction in psychiatry. Most medical schools do not make it important. The lectures are rather dry, the hospitals where students can see patients are so far away that it takes the larger part of a day for a clinic, and the subject is neglected.

We cannot expect the public generally to understand these things better than physicians do. If psychiatry is to be made interesting to students, clinics must be as near at hand and available as they are in a general hospital, and then I am quite sure the subject of psychiatry would be as interesting to medical students as any branch of medicine.

The trouble of making psychiatry a part of preventive medicine is that our boards of health as a rule know little about it. They have not the training to deal with the problems that arise in connection with hygiene of mind. They are interested in what are to them more practical matters, and mental hygiene goes by the board.

If the inspectors of our schools could know something of psychiatry, and were able to recognize early signs in children which would indicate the need of special care, it would be of great assistance. In Boston we have inspectors in the schools who look after the children's teeth, ears, eyes, chest, everything physical, but they are not psychiatrists, and they cannot recognize danger symptoms in the child. If it were possible they might perhaps by advice to the family, and by consultation with the family physician, do something for the child. If we are to accomplish anything in the way of prevention of insanity, it must be largely with the children. When people are grown up, have their habits formed, and are in active life—in circumstances that they cannot always control—not so much can be done as with the children. If we go further back than childhood we deal with matters of heredity, and if the knowledge of such subjects were widely spread among the people, something might be accomplished in time.

Of course the task seems pretty hopeless when we think of all the things one would like to do, and the little that really can be done. I suppose that Dr. Hurd is familiar with the work of the University of London. Mr. Francis Galton has given money to the University of London to use for research work in this field. There is a chair of eugenics in the University of London for the investigation of whatever concerns the breeding of better men, physically and mentally. So far as I know they are taking up certain definite problems; such as, Are physical characteristics transmitted to future generations, and if so with what intensity? From the observation of a thousand families, and the comparison of sons with the fathers, and daughters with mothers, the resemblance was found much greater than that of the children to other people. They have also investigated the question of inheritance of mental characteristics; and the conclusion is that they are inherited in about the same degree as are those of the body.

They also have gone into the question of inheritance of diseases, but the conclusions are not so convincing. Other questions of this nature are being investigated, and the knowledge will of course be spread abroad.

Within the last year I saw a notice in the *British Medical Journal* of the establishment in London of a Eugenics Educational Society, the function of which is to educate the public by holding meetings for discussions and the reading of papers; by giving courses of lectures, spreading the literature abroad; and by lending books for a library. By this educational campaign they propose to reach young people, and instruct them in these matters. It seems to me an exceedingly good movement. I do not believe in legislation. Some States, as you know, have passed stringent laws in matters of heredity, but unless they have behind them an educated public opinion, they do not amount to much, except as they themselves may be educational.

This subject is of the utmost importance, and if boards of health would interest themselves in matters that concern the mental health of the present and future generations, their investigations and publications would carry more authority than reports of the various hospitals for the insane. As Dr. Hurd said, these are very little read by the public generally. Occasionally the local papers will comment on the admirable report of the hospital, but it is left to the reporter to put in what strikes his fancy, or interests him, and very little of importance reaches the public. There is need of a campaign of education, first of physicians, then of the general public.

DR. FRANK P. NORBURY.—I want to call to the attention of this association the work of Dr. Lightner Witmer, of the University of Pennsylvania, Department of Psychology, spoken of by Dr. Mills in his paper. Dr. Witmer is not a physician but a practical, progressive psychologist, who has established at the university a clinic, called the Psychologic Clinic, wherein he conducts analytical clinical studies of the abnormal child, along the lines mentioned here. He studies the child as an individual, working out the mental inadequacies and suggesting individual training to meet the deficiencies. This work is new and meets a need which physicians, teachers, and parents have long recognized. This clinical feature, based on scientific methods of study, marks an era in practical psychology, which we, as clinicians in mental and nervous diseases, should endorse, and qualify ourselves to aid in this advanced work. Especially is it of value to the teachers having in charge primary educational work in our schools. St. Louis was one of the first cities to recognize the needs of the under-average child, in the development of the kindergarten methods applied to individual children, thus formulating progressive means in intellectual development. To me, this is one of the most promising fields in preventive medicine as applied to mental and nervous diseases—here applied psychology measures the capacity and suggests the needs of the child.

Now, as to Dr. Hurd's valuable paper, to the point raised regarding teaching methods in psychiatry, I would say, that it has been my plan to

preface my lectures on psychiatry with a brief course on the principles of psychology. While this must necessarily be elementary, as in fact all real knowledge in medicine must be founded upon elementary principles, yet it serves the purpose of creating interest in and comprehension of what is to follow. I know that students can be interested in psychology, if it is presented in a form which will create interest. For several years, I taught undergraduate, academic students psycho-physics (applied psychology) and the methods used created an interest which served them long after leaving college. As evidence of interest created, take the work of Scripture, while at Yale; many of his students have had lasting benefit from his excellent course. I met only recently, as a patient, a lawyer, who, in speaking of Scripture and his work said, "It has been of great benefit to me in my legal practice."

DR. BRUSH.—I had the pleasure this evening of sitting at the table with a very learned member of this association, who sits now in front of me. He called my attention to the fact that in his belief this association had not done its duty in directing public sentiment and educating the public in matters pertaining particularly to the line of work in which we are engaged. The particular questions on which he touched were not entirely along the lines about which Dr. Hurd has instructed us this evening, but at the same time it set me thinking, and Dr. Hurd's very interesting and suggestive essay has still further stirred my cerebral cortex.

It is evident that the medical profession just at present throughout the country is somewhat awake to its duties in the matter of educating the public, or rather say, in the matter of leading the public. We hear all over the country of public lectures being given upon questions of hygiene, upon various matters relating to preventive medicine and the like, the training of children, the care of the eyes of school children, and cognate subjects. But I have yet to learn of any practical effort being made in the way of public lectures by medical men which shall instruct the public upon a matter which seems to me of very serious importance, and along the lines which Dr. Hurd has laid before us.

Dr. Hurd has trod pretty hard upon the question of education. The great difficulty in the matter of education, it seems to me, is not so much as to methods, but means. When we consider how in the large proportion of cases our teachers are selected for our public schools—the class of individuals from which they are drawn, the training which they have had, the incentive which leads them to engage in teaching—the answer is not far to seek why the results are so bad, why the teaching is so imperfect.

I am not so old but what I can recall that the great incentive held out to me and all the other boys at the school, to study our lessons and be good boys, was not that we were learning something that would be valuable to us and give us a possession we would be proud of, and which could not be bought with money, but that some one of us might some day become President of the United States. I remember morning after morning hearing, "Oh, you don't know but what some one of you may sometime be

called to sit in the chair at the White House." None of us have yet been called; we do not live in Ohio.

The great thing that I recall in all my younger days was: "Don't, don't, don't." There were many things held up to me I must not do. There were no ideals held up before me of what I should do. I think, Dr. Blumer, who is an expert on quoting Scripture, will correct me if I am wrong, it was St. Paul who said: "Whatsoever things are true, whatsoever things are honest, whatsoever things are just, whatsoever things are pure, whatsoever things are lovely, whatsoever things are of good report; if there be any virtue, and if there be any praise, think on these things." How many school children of to-day, or twenty years ago, have had anything of that kind held up before them. It is all a system of rewards and punishments.

Not very long ago a mother came to me in Baltimore, very much disturbed about the state of mind of her daughter. First she had been to her clergyman, and he had plunged her still deeper into an abyss of horror and trouble by telling her that her daughter was morally wrong. From inquiry I learned the girl was at a school where certain rewards for certain things were held up constantly before the pupils. There were three or four pupils in that school who were pretty expert in drawing, and they were attracting a good deal of attention. Their drawings were being exhibited on the walls of the school, and this poor young girl of fourteen saw other girls being patted on the shoulder, and she thought it would be very nice if she could be. So she purloined some of the drawings of the girls who were doing those first-rate drawings, erased their names, and wrote her name on them. She did not dare to exhibit them in the school, but she showed them to her parents as her work. They were astounded; they did not think she had any artistic ability. From that, working in the line of the same desire for admiration and praise, she commenced stealing money, and taking her girl friends and treating them to ice-cream, soda-water, and other things dear to the heart of the schoolgirl. The facts came out. Then her mother came to me, and said: "Doctor, my daughter is a thief. My pastor said she is morally wrong. What is the matter with her?" I said: "Take her out of school. Remember there is a certain critical period in the life of every young girl about her age; turn her out into the country, to the care of a good old lady, who will get her interested in flowers, birds, chasing butterflies, etc." The mother almost fell on my neck and wept when I told her it was not a moral, but a physiological, disturbance in her daughter's case.

She sent her into the country for a year, and she came back round-limbed, rosy-cheeked, bright-eyed, could look you straight in the face, and say yes or no. She was an attractive picture.

How many, however, of these girls and boys are not recognized? There should be, moreover, some expert examination of the capacity of the child to receive the instruction that is about to be given to it, and above all the capacity of the instructor to give that instruction.

DR. BLUMER.—I had not intended to say anything in discussion of Dr. Hurd's paper this evening until my friend from Massachusetts took the floor, but when Dr. Tuttle, whose civil condition is so notoriously what it ought not to be, undertook to talk upon the general subject of eugenics, it seemed appropriate that we others should have a word to say on that subject.

I have been perfectly delighted with Dr. Hurd's paper, and while I am not convinced that it is going to do very much good in his generation, I am sure that it will accomplish something if published as an educational tract. I happen to come from a State in New England which was settled by a crank, Roger Williams, who brought with him to Rhode Island a great many men of his type. Those old families have been breeding and interbreeding ever since, insomuch that there are few of the old families in Rhode Island to-day which do not reveal the unhappy consequence in neuroses of some sort, and the evil work is still going on. There are too many in that little State who act upon the suggestion and follow the example of one of the Wantons, one of the family of the early governors of that name, when Rhode Island was still a colony of Great Britain. He was a Quaker, who became enamored of a young woman who was a Congregationalist, and not being allowed to marry out of meeting, said to her: "Thee will leave thy church and I will leave mine, and we will join the Church of England and go to the devil together."

That sort of thing, I say, has been going on for many generations in Rhode Island, and is still going on. And yet Dr. Hurd's paper is largely a counsel of perfection. I may say that I have myself been consulted a great many times by young people, or rather by parents, with reference to marriages, and only in one case that I recall has my advice been heeded, but it is worth while, ladies and gentlemen, to have had even one success.

I think we ought not to weary in well-doing, or tire of preaching from the housetops the dangers that follow in the wake of marriage of the unfit. Dr. Hurd said also that he would suppress the artistic tendencies in these neurotic people. The suppression of artistic ability in those of neurotic tendency may be all very well, but I should like to know how he is going to do it. The artistic tendency in the neurotic is one that cannot be suppressed by mere medical veto. It perhaps may be guided, but, after all, we should remember that the man who has common sense and who has good poise of character, is usually the commonplace individual. It was Bagehot, the English essayist, who said, I remember, that it was only nations like the Romans and English who got anywhere in this world, because they had not wit or imagination enough to do other than the right thing at the right time. We, of America, seem of a different temperament, and are sometimes like the people of Miletus, of whom it was said about two thousand years ago, "They are not stupid, but they do the sort of thing that stupid people do." We are pretty stupid in this matter of marriage, and Dr. Hurd's millennium will not come during his lifetime or mine, but, if he will excuse me for lapsing into poetry, it may arrive many

years hence when he' and I, "like streaks of morning cloud, shall have melted away into the infinite azure of the past."

DR. WHITE.—I had not intended to say anything on this particular subject, but the time, to my mind, seems to be ripe perhaps to say a word I had in mind to say to the association at another time.

The question which Dr. Hurd has raised with regard to preventive medicine, and the manner in which it ought to be dealt with, is only one of a great multitude of questions which have a public interest—an interest as regards the subject of eugenics—the welfare of the race—which psychiatry and the subjects that touch psychiatry deal with.

I believe that the time is ripe when this association ought to take some stand with reference to these great subjects. We have been in the habit of meeting once every year, holding social gatherings, reading a few papers, dining, smoking together, and then parting until the next year. To my mind, when we do only this, we fail to avail ourselves of the opportunities that are at hand, and we fail to discharge the responsibilities of this representative body of men, having in our membership those who know these subjects. We ought to measure up more fully to our opportunities.

To my mind this association ought to go on record with reference to these great subjects. All over this country these things are being agitated in a local way. In the different States the question of how to deal with the insane is meeting with a great deal of discussion. We find all over that the machinery which deals with the State hospitals is riddled with political chicanery. We find certain problems with reference to education being dealt with, and all these great subjects are buzzing about our ears, and yet the association sits mute, and never does or says a thing to put itself on record, or in any way let the public know there is a body of men who have the knowledge that would enable them to do something of importance in reference to these subjects.

I believe the time is come when this representative body of men ought to take some stand with reference to the subjects that have been dealt with here to-night. I have not given the matter much thought, but I do hope before this meeting adjourns there will be some expression of opinion and some discussion along these lines.

DR. BANCROFT.—Before calling upon Dr. Hurd, I simply wish to say that although I come from the home, or the one-time home, of Mary G. Baker Patterson Eddy, I do not claim any ability as a mind-reader, and no power to read Dr. Hurd's mind. It is, however, a great pleasure to me to find that his ideas and my own check up so nicely. The paper, it seems to me, is a valuable contribution. Two thoughts occur to me as to how this public information can be spread abroad, and how possibly we, as an association, as suggested by Dr. White, can influence public sentiment. I refer particularly to the education in a common, practical, non-technical way of the people, and I think that the medical school, through its officials and in-

structors, can do a great deal of good, the medical schools particularly that are located in large centers.

I do not know whether the medical schools of Chicago, Cincinnati, or other large cities in the country that have such schools, have done anything in this direction or not, but the Harvard Medical School in Boston and, I understand, some of the New York medical schools have taken this matter up. I am more particularly familiar with the methods of the Harvard Medical School. About three years ago a series of popular lectures on medical subjects was instituted, but the subjects did not cover the questions of insanity or mental disease. Last year for the first time insanity, especially its causes and prevention, was introduced as a part of the curriculum of popular lectures, and judging by the attendance, I think we have reason to infer that the plan is not visionary, but is really a practical idea, and will prove to be a helpful means of diffusing popular, practical knowledge about the beginnings, development, and evolution of mental disease.

I have also thought more should be done in the common school. We seem to have ignored the mind. We have taught in our common schools digestion, respiration, and the common physiological functions of the body, but we have avoided entirely any reference to the mind and its operations. Dr. Clouston's book on the "Hygiene of the Mind" is a most remarkable, able, and practical treatise. Such a book can be readily understood and appreciated by the layman; although it may have been written for the layman, it is interesting and fascinating reading for the physician. If some such work as that could be placed in the high school, I can readily conceive the advantage resulting from such valuable information being spread abroad among the growing youth. Coming in this interesting way, practical knowledge concerning the genesis of mental disease would be diffused at a period of life when it would prove of great practical value.

DR. H. M. HURD.—I really have nothing to add except to thank the members of the association for their patient listening to such an address on such a hot night. I do not think that I can add anything to the value of the discussion.

CLINICAL AND ANATOMICAL ANALYSIS OF 23 CASES
OF INSANITY ARISING IN THE SIXTH AND
SEVENTH DECADES WITH ESPECIAL RELATION
TO THE INCIDENCE OF ARTERIOSCLEROSIS AND
SENILE ATROPHY AND TO THE DISTRIBUTION
OF CORTICAL PIGMENTS.

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I. GENERAL STATEMENT.

The diagnosis of mental disease is not anywhere more difficult than in persons attacked in the fifth, sixth and seventh decades in life. This difficulty is paramount in the fifth decade, particularly in women, and is assumed to be connected with altering processes of growth and internal secretory changes. The problems shift their ground in the sixth and seventh decades and are particularly complicated by the suspicion of premature old age changes.

We have chosen to analyze the clinical and anatomical material, accessible to us, from cases developing or assumed to develop insanity in the sixth and seventh decades. We have been looking, consequently, toward the relation of these phenomena to senile phenomena rather than to the more complex or obscure conditions of earlier decades.

We have omitted cases of dementia paralytica, cerebral tumor, and extensive focal brain lesions from consideration in this group.

The 23 cases here presented occurred in a series of 472 autopsied cases (1902-1907) at the Danvers Insane Hospital and were chosen on the ground of probable onset of mental disease in the sixth or seventh decade, as shown by reference to case-histories. All the cases had been observed by one (or both) of the writers or (in a few instances) by assistant physicians who were personally consulted concerning the fitness of these cases for the chosen group. The 23 cases represent a sifting out from about 50 autopsied cases which were thought at first to correspond to our criteria but were found actually to represent instances of paralytica dementia or other coarse brain disease. A few cases, clinically appropriate, were omitted on account of deficiency in the anatomical records. The group represents about 5 per cent of the autopsies performed.

II. CASE MATERIAL.

We present 23 cases of insanity arising in the sixth or seventh decade. The clinical histories are much condensed, and the autopsy protocols are given in summary form. These cases are arranged according to a tentative grouping, adopted for convenience at the outset:

Alcoholic	2 cases.
Paranoic	5 “
Delirious	4 “
Maniacal	3 “
Depressed	9 “
<hr/>	
Total	23 cases.

I. *Alcoholic Conditions.*

Case 1 is a man whose insanity developed at 57 and who died at 63, after five years in the hospital.

No history of neuroses, psychoses or intemperance in immediate family.

He was a bright companionable man in early life and since boyhood had been intemperate in the use of alcohol. Because of drinking habits, he failed in his business as undertaker one year before admission. He continued to drink hard and became much demented. He had no memory for recent events and showed well-marked fabrication.

On admission he was well nourished. Physical examination was negative excepting for sluggish pupillary reactions and diminished tendon reflexes. There was no history of lues.

He was neat and orderly in manner, and talked coherently in response to overtures, but there was practically no spontaneous production. He was disoriented for time, place, and persons. His memory was almost a blank, and he fabricated to supply deficiency. He was not hallucinated and never showed any well-defined delusions. He had no grasp on surroundings or any insight, and was always amiable. He never showed any interest in surroundings or engaged in any work or amusement of his own initiative. There was no apparent change in his mental condition before death.

Anatomical Diagnoses.

Chronic valvular endocarditis.

Calcification of bronchial lymph nodes.

Ulcerative colitis.

Slight aortic sclerosis.

Cysts of kidneys.

Weight of brain, 1250 grams.

Case 2 is a man whose mental trouble developed gradually at 63 and who died at 65, after one month in the hospital.

One aunt was insane. One of his four children died of convulsions. The family history was otherwise negative.

He was said to have had average mental ability and was of a cheerful temperament. All his life he had been addicted to excessive use of alcohol and had for over two years shown gradually increasing mental and physical failure with several attacks of hallucinatory delirium. One month before admission was said to have had a "shock" and to have been delirious and uncontrollable afterward.

On admission he was poorly nourished. Moist râles were heard over both backs. The heart was enlarged and arteries were thickened. Second aortic sound was loud and sharp. There were no murmurs. He walked with feeble, unsteady gait. There was fumbling in coordination tests. Hand grasps were feeble, right being slightly stronger. Knee jerks were very slight but equal. Pupils were equal and reacted normally. There was no history of lues.

He was feeble and remained in bed, showing no desire to rise. He was partially oriented. Speech was thick and indistinct. There was a fair memory for remote events but little for events from day to day. His spontaneous production was incoherent and rambling and vague, persecutory ideas were exhibited. Hallucinations were not pronounced. His emotional

condition was unstable. He cried easily and was irritable. He gradually passed into a semi-comatose condition which lasted for a week before death.

The autopsy (five hours after death) showed the following conditions:

Hypostatic pneumonia with acute fibrinous pleuritis.

Slight aortic sclerosis.

Slight mitral sclerosis.

Marked sclerosis of cerebral vessels at the base.

Cardiac hypertrophy.

Chronic diffuse nephritis with cysts.

Chronic perisplenitis and pericholecystitis.

Sebaceous tumor of axilla.

Besides the marked basal arteriosclerotic changes, the intracranial tissues showed no other macroscopic signs of lesion, except a slight milkiness of the pia mater of the frontal region.

2. *Paranoic Conditions.*

Case 3 is a single woman whose insanity developed when 56-58 and who died in the hospital, aged 68, after eight years' hospital residence.

There was a history of neurotic and insane relatives. One brother was insane from early life. As a young woman she had excellent social and educational advantages and was considered a bright, capable woman. For two to three years before admission she had been suspicious, disagreeable and deluded.

Physical examination negative save for a systolic murmur at apex. Mentally she was oriented, showed good appreciation of surroundings. There was no pronounced deterioration. She fancied God talked to her and carried on conversation with Him, basing predictions, and prophecies upon what was said to her. Her delusions were of persecutory tinge, not systematized and related largely to religious and sexual matters. She was very repellent in attitude, keen and sarcastic in her comments. She was able to read and comprehend. Often she was profane and obscene in her talk and would be very disagreeable to some patients and unnaturally fond of others. There was no marked conduct disorder. There was a varying content to her delusions and a slowly increasing looseness of thought but to the last she was oriented and when annoyed would talk in keen, incisive and abusive manner. Two years before death weakness, numbness and tingling suddenly developed in right arm, and her writing, previously good, became illegible and her speech was thick but not aphasic. There was gradual improvement and no marked dementia following. Death occurred suddenly.

Anatomical Diagnoses.

Rupture of the heart wall due to infarction following thrombosis of posterior coronary artery.

Rupture of terminal branch of anterior coronary artery.

Hemopericardium with pressure upon lungs.

General arteriosclerosis (aortic, pulmonary (extensive), coronary, carotid, Circle of Willis, splenic, renal).

Sclerosis with calcification (thoracic aorta, coronary).

Hypertrophy of both sides of heart.

Slight chronic interstitial nephritis.

Chronic splenitis.

Multiple fibromyomata of uterus.

Slight cirrhosis of liver.

Chronic external adhesive pachymeningitis, more marked on left.

Slight chronic fibrous leptomeningitis (especially vertex and Sylvian regions).

Cysts of softening, right frontal cortex and of left side of pons.

Localized sclerosis of left precentral gyrus with induration of underlying white matter, most marked at junction of upper and middle thirds.

Slight focal cerebral atrophy (both Rolandic areas, left superior parietal lobule, olfactory bulbs and tracts, orbital gyri).

Slight marginal sclerosis of clival and cacuminal portion of cerebellum.

Calcified plaques in pia mater.

Case 4 is a widowed woman aged 61 at admission. She was said to have been peculiar if not insane since the age of 50. Death occurred at 72 after 11 years in the hospital.

No family history obtainable. She had been a nurse. Persecutory delusions slowly developed accompanied by auditory hallucinations. She feared that men whom she heard about the house at night would kill her and kept a revolver for self-protection. The sexual element was prominent in her fears. At time of admission there was no marked deterioration. Auditory hallucinations were quite prominent for the first year or two but finally disappeared. Her delusions were not well systematized and she reacted by refusal of food, sullen, threatening attitude and occasional violence. There was considerable deterioration during last years in hospital. She became disoriented, careless of appearance and finally untidy. Her delusions became less prominent and her manner more agreeable. Several years before death she became mute, resistive, showed muscular rigidity, *Schnauzkrampf*, and refused food at intervals.

Anatomical Diagnoses.

General arteriosclerosis, with atheromatous ulcers, extreme in lower two-thirds of aorta and in coronaries (not so marked in visceral vessels) of but a few mm. in diameter.

Fatty myocarditis.

Chronic fibrous myocarditis.

Multiple cardiac infarctions.

Arteriosclerosis of coronary arteries with practically obliterated lumen.

Chronic diffuse nephritis of interstitial and arteriosclerotic type. (Very marked macroscopical changes.)

Cerebral arteriosclerosis, as far as secondary branches of Circle of Willis.

Cerebral atrophy, with focal sclerosis in left occipital and right parieto-occipital regions.

Numerous small cysts of softening in both corpora striata and in right optic thalamus.

Diffuse atrophy of cerebellum with marginal sclerosis.

Absence of diploë.

Chronic external pachymeningitis.

Weight of brain, 1110 grams.

Case 5 is a widowed woman whose insanity began at the age of 66 and who died at 72 after five years' hospital residence.

Her father died of cardiac trouble and her mother of "Bright's disease." One brother committed suicide and two others were insane.

She had average mental capacity. No drug or alcohol habit. A year before admission she was said to have been overcome by heat and to have had a convulsive seizure, the only one noted. Nearly one year later she began to think people were plotting to kill her son and herself. She fancied electric wires were put under the floor to give her shocks, talking machines placed at her window to call her names and X-rays turned on her and that she had been hypnotized.

On admission she was a well-preserved woman for her age. She was perfectly oriented and had a good memory. Auditory hallucinations were active. She talked coherently. Protested against commitment, but admitted she had acted peculiarly. Her persecutory delusions were of sexual character and she was frequently disagreeable and repellent or abusive and denunciatory. For weeks at a time she would appear exhilarated and unusually active and then she would be moderately depressed in appearance and more tractable. There was no marked mental deterioration and she had good memory and was oriented up to time of death.

The autopsy (20 hours after death) showed the following conditions:

Hypostatic pneumonia.

Tumor of omentum with metastases in mesentery and peritoneum.

Fatty heart, liver and kidneys.

Ascites and edema of legs.

Calcified nodules in upper lobe of right lung.

Cholelithiasis with obstruction of cystic duct and distention of gall-bladder.

Chronic external adhesive pachymeningitis.

Cerebral atrophy of the convexity especially in frontal and parietal regions.

Case 6 is a single woman whose mental trouble began at about 60. She died at 77 after 7 years in the hospital.

Her father died of "apoplexy" and mother of "old age." One brother and one sister died insane. She had a good education and had been a woman of good habits, but had been regarded as eccentric and peculiar for 10 years. During the larger part of this time she lived alone. She became suspicious and finally exhibited to her relatives many persecutory and depressive ideas. She thought the Catholics were injuring her, that electric light flashes were used as signals by those in league against her. She heard voices and strange noises around her house. Finally she thought she was lost and unfit to meet her Maker.

On admission, she was poorly nourished, but aside from moderate peripheral arteriosclerosis, her physical health was good.

She was fearful and apprehensive in manner but perfectly oriented and keenly interested. Memory was excellent. At times she showed slight insight. She showed extreme apprehensiveness and thought she was being poisoned by Catholic conspirators. Was afraid of nurses and was greatly worried and distressed. A few days after admission she became mute, resistive, rigid and refused nourishment for a short time and showed the same symptoms some months later. She developed peculiar hypochondriacal delusions, based upon visceral sensations, thought she was going to be made a pauper and then left alone. Her persecutory ideas were constant. Memory and orientation were preserved to the last of her illness. There was never any psychomotor retardation.

Anatomical Diagnoses.

Malnutrition.

Tuberculosis of lungs with cavitation.

Sacral decubitus.

Edema of ankles.

Brown atrophy of heart.

Fatty heart.

General and coronary arteriosclerosis.

Chronic fibrous pericarditis.

Atrophy of liver.

Chronic nephritis with cysts.

Chronic splenitis.

Chronic adhesive pleuritis.

Chronic peri-appendicitis.

Cerebral atrophy and pigmentation.

Cerebral edema.

Edema of pia mater.

Intracranial vessels normal, except for dilatation and sclerosis of right posterior communicating artery.

Brain weight 1130 grams.

Case 7 is a widowed woman whose insanity was first recognized five to 10 years before death, which occurred at 75 after seven months in the hospital.

Her father died at 60, her mother at 90. No history of insanity or neurosis in family. Fairly capable woman. Had a family of three children. At age of 55 had an attack of inflammatory rheumatism and was taken to a city almshouse where she remained until transferred to the hospital, as she was crippled by rheumatism. For five to 10 years she had been deluded, suspicious and disagreeable.

On admission she weighed 76 pounds, fingers were contracted and joints enlarged and deformed. Nothing else of interest in physical examination.

She was quiet, orderly and neat in care of person. Orientation was perfect, her memory was good, school knowledge was retained, she had a good grasp on surroundings and fair knowledge of current events. Her productions were coherent. Auditory hallucinations were constant and were of abusive content. Her delusions were not systematized but were always persecutory in character and she talked about them freely. At times she was disagreeable in manner and would scold about her fancied abuses. She kept interested in surroundings and there was no pronounced mental deterioration at time of death.

Anatomical Diagnoses.

Bronchopneumonia.

Chronic diffuse nephritis.

Chronic passive congestion of liver.

Acute splenitis.

Chronic leptomeningitis.

Sclerosis of basal cerebral vessels.

Unequal pupils.

Chronic fibrous pericarditis (milk spot).

Scarring of apices of lungs.

Enlargement of retroperitoneal lymph nodes, slight.

Weight of brain, 1180 grams.

3. *Delirious Conditions.*

Case 8 is a man, who was 55 years old when admitted at Danvers.

His family history was not obtained. Friends stated that he had been a hard-drinking laborer who had never been insane. He had worked until a short time before admission.

There was no history of lues. He was poorly nourished. Urine showed cloud of albumin, sp. gr. 1024. Sediment contained broad and narrow hyalin casts, blood and pus corpuscles. The heart was much enlarged and second aortic sound was loud and sharp. He was feeble, tremulous, and unable to stand unassisted. There was no paralysis. Knee jerks were absent. Pupils were equal. Light reactions were not determined. There was a questionable history of specific lesion three years before.

He was completely disoriented. Attention could be held and he gave relevant replies. He reacted to visual and auditory hallucinations by feeble groping restlessness and broken, thick speech. No memory for recent events and that for earlier periods was fragmentary. At times he showed partial insight. There was no improvement. He took liquid diet freely. On the ninth day his rectal temperature which had previously been within normal limits fell to 91.4. Within 24 hours it slowly and gradually rose to 101.8. Physical examination showed nothing new. He became more feeble and stuporous and showed tendency to fabricate when aroused. He died on the 19th day after commitment.

Anatomical Diagnoses.

Small scar of penis.

Dilatation of pupils.

Emphysema of lungs.

Chronic adhesive pleuritis of both sides, posteriorly.

Moderate mitral sclerosis.

Moderate sclerosis of aortic arch.

Ecchymoses of fundus of stomach.

Chronic diffuse nephritis.

Aortic sclerosis with calcification of abdominal portion.

Calvarium shows little diploë.

Chronic external adhesive pachymeningitis.

Chronic fibrous leptomeningitis.

Marked edema of pia mater, posterior region.

Weight of brain, 1350 grams.

Case 9 is a man 56 years old, who had never shown mental symptoms until he was delirious following an acute otitis media six years ago.

One sister was said to be "peculiar" and another had "nervous prostration" in middle life. He was a man of fair ability, steady in habits and worked as a drug clerk for 32 years. Six years ago following his ear trouble he had inflammatory rheumatism and had not been well physically since then. He had not worked for two years. He became unreasonable

in conduct and failed physically. Two weeks before admission he was unconscious for two hours and since then was "nervous and restless."

On admission he was well nourished. The urine showed cloud of albumin. Sp. gr. 1022. Sediment contained hyalin casts, leucocytes, and calcium oxalate. The heart was greatly enlarged. The second aortic sound was loud and second sound at apex was reduplicated. Arteries were thickened and pulse was irregularly intermittent. There was no paralysis. Hearing and vision were slightly defective. The pupils reacted promptly to light and knee jerks were equal and lively.

On admission he was imperfectly oriented. His school knowledge was imperfectly retained. Memory was greatly impaired and defects were covered by romancing. He constantly reacted to auditory hallucinations. He could not give any intelligible account of past events. There was an almost constant fumbling restlessness and he was untidy and feeble. He died nine days after commitment.

Anatomical Diagnoses.

Cardiac dilatation.

Acute myocarditis.

Hypostatic pneumonia.

Chronic perisplenitis.

Acute splenitis.

Acute bronchitis.

Obliterative fibrous pleuritis, right.

Aortic sclerosis.

Chronic external adhesive pachymeningitis.

Case 10 is a woman 55 years old who showed mental symptoms for the first time about five months before admission.

No family history was obtainable. She had been temperate. For six months or more she had suffered from kidney and heart disease.

On admission she was poorly nourished. There was general anasarca. Abdominal cavity contained fluid. Moist râles were heard over both backs. Heart was dilated, action was feebly intermittent, and sounds were fluttering and indistinct. The soft murmur heard could not be timed. The urine showed sp. gr. 1018, and contained albumin and hyalin casts. She was unable to stand. There was no paralysis. Knee jerks were equal and lively and pupils reacted promptly to light and were equal. There was great dyspnoea. She was completely disoriented and unable to recall recent events or to give any coherent history. She could not perform simple mental arithmetic. There was no insight. Visual and auditory hallucinations produced apprehensive reaction. She would beg for protection from those whom she thought would shoot or injure her. She made no effort to care for her person and was feebly restless until death occurred suddenly on the 12th day in hospital.

Anatomical Diagnoses.

General anasarca.

Cardiac dilatation.

Chronic passive congestion of liver, spleen, and kidneys.

Chronic diffuse nephritis.

Weight of brain, 1300 grams.

Case 11 is a man 70 years old who had showed no previous mental symptoms excepting two short delirious episodes within the past three years.

His father died of "rheumatism" at 80; his mother at 60 of unknown cause. A maternal aunt became insane at age of 50 and did not recover. Patient had been an industrious man of good habits. There was history of inflammatory rheumatism in early life and several milder attacks later. He had done no work for three to four years before admission. He had shown symptoms of present trouble for two months. When examined he was poorly nourished, limbs were edematous. Skin was dry and scaly. There was fluid in right chest. The heart was much dilated, arteries were thick, pulse was feeble and irregular, and a loud, musical systolic murmur was transmitted to the axilla. The urine showed sp. gr. 1022, 10 per cent albumin. Sediment contained broad granular and hyalin casts, pus cells and uric acid crystals. Neurological examination was negative. He was disoriented. Memory was gone for recent events, but at times he would exhibit fair recollection of early life. He could not write or perform mental arithmetic with any accuracy. At intervals he showed some insight. He became more restless and apprehensive and was totally unable to converse intelligibly and died in a few days.

Anatomical Diagnoses.

Focal sclerosis of basilar artery and of one Sylvian artery.

Cysts of softening in lower part of right centrum ovale external to tip of right lateral ventricle.

4. Maniacal Conditions.

Case 12 is a woman whose insanity developed at age of 52 and who died in the hospital at 69.

Both her parents died in extreme old age. One sister was peculiar from early life and considered insane, though never requiring commitment.

She had a normal development. At 25 she was married and had five children, one dying in infancy, another at the age of 23. The menopause occurred uneventfully at 40. From the age of 52 she was depressed or exhilarated, according to the history, much of the time. The attacks were not of regular duration. At one time she was well enough to live comfortably at home for three years. In her excitement she was loquacious disorderly, and elated. In the opposite condition she showed retardation, depression and difficulty in thinking. In both states she remained oriented until shortly before death and there was no marked dementia.

At time of admission, one year before her death, she was anemic and poorly nourished. Heart was slightly enlarged. Arteries were thickened. Urine, normal. Neurological examination was negative.

Her countenance was sad and she was apprehensive and bewildered. She remained in bed, moaning unintelligibly and was untidy. Answers to questions were usually in monosyllables and much of the time she was mute. For a few days at a time she would appear cheerful and talk volubly, showing a broken flight. At these times she would show fair memory and was oriented. For some months before her death she was untidy, depressed, retarded, and showed a tendency to self-accusation. She refused nourishment and failed slowly.

Anatomical Diagnoses.

Emaciation.

Hypostatic pneumonia with acute sero-fibrinous pleuritis, and (by extension) acute mediastinitis and pericarditis.

Small hemorrhages in gastric mucosa.

Acute splenitis.

Chronic diffuse nephritis.

General arteriosclerosis (aortic, coronary right anterior choroid, and pulmonary).

Chronic myositis with pigmentation (thorax).

Brown atrophy of heart muscle.

Mitral sclerosis.

Chronic fibrous endocarditis.

Chronic gastritis.

Chronic external adhesive pachymeningitis.

Chronic leptomeningitis (over sulcal vessels at vertex).

Deficiency in left vertebral and right posterior communicating arteries.

General encephalomalacia and myelomalacia.

Frontal, orbital, and central sclerosis.

Case 13 is a man who became insane at 63 and who died at 67 after two years' hospital residence.

His father died of pneumonia at 76 and his mother of tuberculosis at 28. A brother and sister also died of tuberculosis. There was no history of nervous or mental disorder in family.

He had been a hard-working farmer and made a good living for his family. He had been rather moody and quiet in temperament. Two years before admission he slowly developed an unreasonable attitude towards family, an increasing activity, a garrulous flight of expansive ideas and was sent to a private hospital. Then he became disorderly, destructive, and violent.

On admission he was in excellent physical condition. He had a keen, alert countenance. Orientation perfect and memory was excellent for recent and remote events. He had no hallucinations. There was no insight.

He talked incessantly for hours in the night simply to annoy others, which he would consider a great joke. He would write long abusive diatribes about the hospital, physicians, and nurses and announced his purpose of forming a league to reform hospitals. He would become so disorderly that seclusion was demanded and then the incident would be recorded as evidence and he would declare that his unbearable conduct was a part of his scheme. He was always coherent in talk and writing and his flight was orderly. Elation and psychomotor activity were constant. His conduct disorder was out of proportion to symptoms of intellectual impairment.

Anatomical Diagnoses.

Hypertrophy of heart.
 Fatty heart.
 Ascites.
 Chronic external adhesive pachymeningitis.
 Chronic fibrous leptomeningitis, especially along vessels.
 Moderate basal arteriosclerosis.
 Frontal cerebral atrophy.
 Focal area of softening of paracentral lobule.
 Weight of brain 1310 grams.
 Ecchymoses of right hip and of right chest behind.
 Multiple fractures of right humerus.
 Hemorrhage of retroperitoneal tissue of right side.
 Hemorrhage of retroperitoneal tissue about bladder and rectum, right side.
 Emphysema and edema of lungs.
 Emphysema of pleural adhesions and of mediastinum on right side.
 Fractures of ribs, upper six ribs.
 Fracture of right ilium and os pubis.
 Hemorrhage of chest near attachment of hepatic ligaments.
 Wound of right kidney.

Case 14 is a woman who suddenly became insane at the age of 57 and who died at 70 after 13 years in the hospital.

No reliable family history. She is said to have been well until a few weeks before admission when she became restless, talkative, and disorderly.

Her physical health on admission was good.

She was active, mischievous, irritable and disorderly. There was no marked deterioration. She was oriented. There was marked distractibility and her conversation was flighty and broken. Excepting for short out-breaks of irritability she was constantly elated. The condition was constant to the end.

Anatomical Diagnoses.

Marked emaciation.
 Sacral decubitus.
 Bronchopneumonia.

Interstitial nephritis.
 Chronic fibrous myocarditis.
 Chronic passive congestion of spleen, and chronic perisplenitis.
 Varicose veins of legs.
 Chronic endocarditis, mitral and tricuspid.
 Ascites.
 General tubercular peritonitis.
 Tuberculosis of intestines.
 Tuberculosis of liver.
 Tubercular adenitis of peri-bronchial lymph nodes.
 Sinus into right knee joint.
 Chronic patellar bursitis, right.
 Superficial wound of left thigh.
 Sub-acute cholecystitis.
 Chronic external adhesive pachymeningitis.
 Weight of brain, 1110 grams.
 Chronic obliterative pleuritis, right.

5. *Depressed Conditions.*

Case 15 is a man aged 58 who showed first evidence of mental trouble at 56 and who died at 58, after four months' in the hospital.

His father died of apoplexy at 70, and mother at 80 of unknown cause. No history of neurosis, psychosis or intemperance in his family.

He never used alcohol, and had been a hard-working man of frugal habits. For two years before admission, he had exhibited an increasing hypochondriacal depression. Twice he had persuaded surgeons to perform an exploratory laparotomy, to no effect. He became more restless, agitated and suicidal and was committed.

On admission, he was poorly nourished. Heart was enlarged, arteries moderately thickened, pulse feeble, sounds were very faint. Urine contained a trace of albumin and was otherwise normal. Neurological examination was negative.

His expression was sad and hopeless. He was constantly groaning and talking volubly. Orientation was perfect and memory was not impaired. No hallucinations observed. He talked freely about his feelings of unreality and nihilistic ideas. The following excerpts show their character:

"There it is. I am all ablaze. I am burning, burning. Every breath that comes out of my mouth is as hot as if it were coming from a steam-engine. I burn just like a fire. It must be Hell. I will last as long as the earth. My God, man, look here. I am all afire. Oh, burning, burning, and I can't take water. Water don't check my thirst. I tell you one thing, when you talk to me, you are talking to Hell. I am craving for nuts, apples, milk, everything, and I can't take them. I've got no stomach and it is no use to put them in my mouth. I am in Hell. I am all afire. This will never take my life. Oh, this is pain. It biteth like a serpent and stingeth

like an adder. You can shoot me full of bullets and I won't die. My spirit sticks my throat together. I would give a million dollars if I had a disease which would kill me. Everybody will be dead and gone, the world will have passed, these trees will be gone and this building will be rotted down and I will still be here."

Aside from physical failure, there was little change in his condition before death.

Anatomical Diagnoses.

Pulmonary tuberculosis, small old focus.

Pulmonary hypostasis, slight.

Chronic diffuse nephritis.

Slight aortic and coronary sclerosis.

Weight of brain, 1370 grams.

Case 16 is a widowed woman about 65 years old, whose mental trouble began about six months prior to death, which occurred after three months in the hospital.

Her father died at 75 of rheumatism her mother at 73 of pneumonia. One brother died insane and the family history was otherwise negative.

She was a mill operative and nurse before marriage, at 46. Menopause occurred uneventfully, at 50. For some months, she had been nursing an invalid husband, who died. She became depressed, restless and came to the hospital as a voluntary patient.

She was fairly well nourished. Heart was slightly enlarged. Arteries were thickened and there was a well-defined arcus senilis. Pulse regular; second aortic sound was sharp and clicking. Urine showed hyalin casts and albumin. Aside from subjective sensations, neurological examination was negative.

She was much depressed, sleepless and agitated. Orientation was perfect at first and school knowledge was retained. Memory for early events was good, but somewhat impaired for recent periods. Auditory hallucinations developed and voices of her family were heard, later she saw people who had been raised from the dead. Her attention and memory showed more impairment and feelings of unreality developed and she talked about them constantly.

"Oh dear. Why don't they do something so I won't suffer. See my legs and see my eyes. I am turning into an animal. Blotches have come on my skin, it is all shrunk up and my eyes look fierce like a squaw's eyes. Send me home, I can't stand it. Why can't you put something through me to kill me. Oh, my God. I've got to be like a bear. Why am I so crazy? Oh, dear. Why am I to be killed?"

For short periods, her attention could be held and she had partial insight, but she grew rapidly worse, becoming less communicative and refusing food before death.

Anatomical Diagnoses.

Nutrition poor.

Surgical incisions of right forearm, left forearm and right knee.

Slight coronary arteriosclerosis.

Slight sclerosis of aortic arch.

Fatty liver.

Hyperemia of spleen.

Slight edema of lungs.

Chronic interstitial nephritis.

Smooth globular, subcapsular encapsulated tumor of right kidney.

Submucous fibromyoma of uterus.

Subperitoneal fibromyoma of uterus with calcification.

Polyp extending from the upper wall of uterus to vagina.

Slight chronic external adhesive pachymeningitis.

Focal sclerosis of right Sylvian artery (one patch).

Weight of brain 1220 grams.

Case 17 is a man who first became insane at 65 and who died within six months.

His father died at 77 of cardiac disease and his mother at 67, after three years of senile dementia.

He served in the Civil War and for 35 years had worked as an operative. He was a man of pleasant disposition and industrious and temperate habits. When 61, he had grippe and typhoid fever. Was delirious during both illnesses. He worked steadily until nine weeks before commitment, though he had been sleeping poorly, losing weight and exhibiting depression for some weeks. He fancied that his family would starve and freeze, that he was decreasing in size, and that others were growing larger. He refused nourishment.

On admission, he was emaciated. Heart was not enlarged; second aortic sound was loud. Pulse was feeble and arteries were soft. There was a faint arcus senilis. The urine contained no albumin or casts. Reflexes were equal and lively. Muscular movements were well performed. There was no history of lues.

He was oriented for time, place and persons and showed good memory. School knowledge was well retained though answers to tests were given accompanied by protestations that he could not tell, that he had no brains, etc. He talked sharply in almost petulant manner, though showing depression and agitation. His spontaneous productions are shown by the following:

"I've got no brains and I can't talk and you are going to make out a wrong report. I've got no heart and no stomach and I can't swallow. I haven't any feelings." At another time, when addressed, he said: "Yes, you are all great big men and so strong, you must weigh over 400 pounds, and I am so small you can't see me. I'm freezing to death and you cover

me with great heavy blankets. I would not burn if you threw me in the hottest furnace, but I can't suffer because I have no brains."

He refused food and failed rapidly, showing similar symptoms to the end.

Anatomical Diagnoses.

Nutrition poor.

Chronic adhesive pleuritis of both apices.

Thrombosis of right auricle.

Bronchopneumonia of both lower lobes.

Embolism of primary branches, of left pulmonary artery.

Chronic perisplenitis.

Suppuration of retroperitoneal tissue (pneumococcus and other bacteria), probably due to thrombosis of left renal veins.

Pyelitis.

Ureteritis.

Cystitis.

Vesiculitis.

Moderate aortic sclerosis.

Thrombosis (3 x 2 x 1 cm.) of aorta.

The above case has been previously reported in full by Mitchell and Southard, *Melancholia with Delusions of Negation: Three Cases with Autopsy*, *Jour. Nerv. Mental Disease*, May, 1908.

Case 18 is a married woman, whose first mental trouble occurred two months prior to death, at 58, three weeks after admission to hospital.

Her father died of tuberculosis at 68, and her mother in middle life of some intestinal trouble. Four brothers and sisters alive and well. No history of neurosis, psychosis, or intemperance in family.

She was of a bright, cheerful temperament and was married at 28. She had no children. The menopause occurred uneventfully at 49. Her mental trouble began with worry, sleeplessness, feeling of poverty, hallucinations and development of depressive persecutory ideas.

On admission, she was poorly nourished. Heart was not enlarged. Arteries were thickened. Pulse was small. Urine showed albumin and hyalin casts. Tendon reflexes exaggerated.

She was apprehensive and inactive. There was little spontaneous speech though she moaned and sighed. Orientation was imperfect, but her memory was good. Attention was held with difficulty. Questions were answered after initial delay of 10 to 30 seconds.

Q. "Are you afraid?"

A. "Yes, of everything."

Q. "What makes you afraid?"

A. "Oh, I don't know, lots of things. I am afraid something is going to happen to me."

Q. "Why can't you stay in bed?"

A. "Because I am afraid."

Her depression and restlessness increased but the character of her productions remained unchanged until death.

Anatomical Diagnoses.

Acute enteritis, in places diphtheritic.
 Bronchopneumonia, slight.
 Chronic diffuse nephritis.
 Thrombosis of branch of right middle cerebral artery.
 Chronic fibrous pleuritis.
 Cysts of choroid plexus.
 Aortic sclerosis.
 Weight of brain, 1330 grams.

Case 19 is a man whose mental trouble first developed at 70. He died at 71 after eight months in the hospital.

The family history was negative. He had used liquor freely until within a few years but not sufficiently to produce recognized mental symptoms. For about one year, he had been depressed and after, threatened suicide. Finally he cut his throat and was committed one week later. During this period, he was said to have been "clear and rational," excepting on a few occasions when he appeared unusually disturbed and showed suicidal tendencies.

On admission, he was pallid and poorly nourished. There was a suppurating, superficial wound. There were moist râles and dulness at both apices. Heart was not enlarged. Arteries were hardened and arcus senilis was marked. Urine contained a few hyalin casts, but no albumin.

He appeared depressed. Talked responsively in low, soft tones with some delay and few words. He was fairly well oriented. There was slight memory impairment for both recent and remote events. He was not hallucinated. Partial insight was displayed and he was thankful that the suicidal attempt was unsuccessful. He showed ill-defined persecutory ideas and worried about his family relations, but showed no peculiar reaction to his surroundings. His depression was constant and he became more reticent. He was always orderly in conduct and neat in habits. Death occurred after gradual physical failure.

Anatomical Diagnoses.

Marked emaciation.
 Scar of neck at upper border of cricoid cartilage.
 Chronic fibrous pleuritis, left.
 Chronic obliterative pleuritis, right.
 Milk patch of left ventricle and left auricle.
 Slight mitral sclerosis.
 Abscesses of right apex.
 Chronic tuberculosis of lungs with acute fibrinous pleuritis of right lung.
 Diverticula of descending colon.
 Chronic perihepatitis of left lobe.

Scars of kidneys.
Hernia of left side of bladder.
Chronic external adhesive pachymeningitis.
Basal cerebral arteriosclerosis.
Focal cerebral atrophy (opercular region).
Chronic internal hydrocephalus.
Weight of brain, 1240 grams.

Case 20 is a man whose mental trouble began at 52 and who died three months later, after two weeks in the hospital.

Insanity and intemperance in the family were denied.

He had been a capable bookkeeper of rather eccentric manner and solitary habits. He was not intemperate. Following hard work and some business worry, he tried to throw himself in front of a moving train a month before his admission. For a few days he was excitable and depressed but soon improved. He heard voices talking to him and he was committed.

He was poorly nourished. Physical examination was negative, excepting inequality of knee jerks. Urine was normal.

His movements were feeble and his expression worried, and apprehensive. He talked slowly, after making long pauses; voice was low and indistinct. He was partially oriented. Memory for recent and remote events good. He had a good appreciation of surroundings. Auditory hallucinations were prominent and of frightful content and were reacted to by fear and apprehension. He was self-condemnatory; blamed himself for the many losses of his employers; thought he would communicate disease to those about him. He wanted to die as there was no hope for him. He showed restless agitation, would not remain in bed; refused proper food and became uncommunicative before death.

Anatomical Diagnoses.

Marked emaciation.
Dilatation of pupils.
Chronic fibrous pericarditis.
Aspiration pneumonia with acute fibrinous pleuritis.
Old scars of right kidney.
Chronic perihepatitis with adhesions to peritoneum.
Chronic peri-appendicitis.
Enlargement of mesenteric lymph nodes.
Adhesions of scalp to calvarium.
Marked chronic external adhesive pachymeningitis.

Case 21 is a man whose depression was first observed at 51 and who died at 54 after two years' hospital residence.

His father was living. His mother was neurotic and died of consumption at 58. One maternal uncle was an imbecile, another was intemperate. One brother was neurasthenic and intemperate.

He had average ability, was industrious and temperate. His manner was quiet and reserved and he was inclined to worry over trifles. For two years he had had financial trouble and for six months had been depressed and shown a tendency to self-accusation and had been afraid he would injure family or himself.

On admission, he was pallid and emaciated. There was evidence of pulmonary tuberculosis. Heart was enlarged and there was a thrill and presystolic murmur at the apex. No history of lues. Urine was normal. Inequality of knee jerks was the only thing of interest in neurological examination.

His expression was sad and dejected and his movements were slow and feeble. Orientation was perfect and memory was unimpaired. Auditory hallucinations were noted. He said his conscience talked to him, once remarking, "It is a mockery for me to pray, and when I try, my conscience goes to work and gives me such a wild feeling I don't know what to do." Later, he heard voices of his relations calling to him and saw faces. He blamed himself and thought he had sinned unpardonably and caused others to suffer. Fancied he could see fire and smoke rising from Hell and that he heard the voice of God summoning him to appear and take his punishment. He rarely took the initiative in talking. His voice was low and indistinct. He was neat and orderly in conduct. Three months before death, a tubercular mediastinal abscess was drained. He failed physically and his depression, hallucinations, apprehensiveness, and self-accusation remained unchanged. Memory and orientation good to the end.

Anatomical Diagnoses.

Pulmonary tuberculosis, far advanced on both sides, with cavitation and caseation.

Chronic tuberculous pleuritis.

Anomaly of left olfactory tract.

Marked emaciation.

Operation wounds on anterior aspect of chest.

Subcutaneous sinus on left aspect of chest.

Arteriosclerosis of coronaries and of aorta, slight.

Chronic passive congestion of liver.

Weight of brain, 1410 grams.

Case 22 is a woman who was well until age of 55 and who died at 59 after four years in the hospital.

Her mother died of "softening of the brain" at 75, and her father at 50 of unknown cause. One paternal cousin was insane. Three brothers and sisters in good health. She was married at 19 and had one living child. Menopause occurred uneventfully at 40. She never had any serious illness. For two months, before admission, she was restless and showed increasing agitation, pacing to and fro, picking at her clothing, whispering to herself. She exhibited self-depreciation, cried and talked of suicide.

When admitted, she was emaciated. There was a slight peripheral arteriosclerosis. Heart was not enlarged. Urine contained albumin and granular casts.

She presented an appearance of dejection, talked in a low, almost indistinct tone. There was little motor activity. She would sit for hours in contracted attitudes and occasionally pace slowly about in aimless manner, wringing her hands and moaning. Orientation was perfect and memory was good. Auditory hallucinations were transitory. Her attention could not be diverted and she had distressing delusions; imagined that she had a loathsome disease, that she had been a wicked woman, that a terrible fate had overtaken her relatives. Distressing nocturnal, visual hallucinations developed and her condition is well shown by an occasional outburst. "I am under a terrible influence. I can't help it. If I only could see things as you do. I have done wrong. I was born under a curse. I didn't know my mother was diseased until I came here. I know I have got the bad disorder. I am not going to eat any more. I don't want to live. Please don't do anything for me, doctor, I want to die, but I don't want to be tortured to death. Can't you let me die quickly?" She became more depressed and retarded; would rarely speak spontaneously, except to beg that she might die. She would attempt to empty her stomach after forced feeding. She was oriented and had fair memory until her death.

Anatomical Diagnoses.

Edema of left hand.

Acute purulent pericarditis.

Slight chronic fibrous pleuritis, posteriorly.

Hydropericardium.

Brown atrophy of heart.

Hypertrophy of heart.

Bilateral bronchopneumonia.

Liver weight, 760 grams.

Renal atrophy.

Moderate aortic sclerosis.

Weight of brain, 1040 grams.

Case 23 is a man who developed a depression at 64, attempting suicide, made a fair recovery and died at the hospital eight years later.

His family history was not obtainable.

He had used liquor freely in early life but had never been insane and for 10 years had been temperate. For some months, prior to admission, he had been very despondent and unable to work. He filled his pockets with rocks and jumped into the river. After being rescued, he was brought to the hospital. At that time he was considered to be a case of "acute melancholia." It appears from the incomplete record, that he recovered in a

few months. He was a good machinist and desiring to remain at the hospital, he was allowed to work for a small compensation and for eight years prior to death, he showed no evidence of mental derangement.

The autopsy (three hours after death) showed the following conditions:

Carcinoma of stomach with secondary nodules in liver.

Miliary tuberculosis of peritoneum and parietal pleura.

Emaciation.

Anemia.

Chronic obliterative pleuritis, left lung.

Chronic adhesive pleuritis, left apex.

Fibrous aortitis about origins of intercostal arteries.

Slight chronic fibrous leptomeningitis.

III. CLINICAL SUMMARY.

In this summary we have included some general statistical features, but have paid special attention to the diagnostic points which tend to separate these cases from arteriosclerotic and senile atrophic cases.

Sex.

There are 12 male, 11 female patients in our series. Both alcoholics were male. The five paranoics were female. Three of the delirium cases were male, one female. Two of the maniacal cases were female, one male. Six of the depressed cases were male, three female. If the maniacal and depressed cases are placed in one group, there are seven male cases, five female.

Hereditary Factors.

Hereditary factors may be excluded (with the usual reservations for these State hospital patients), in Cases 1, 7, 13, 15, 18, 19, 20; occur but are not especially prominent in Cases 2, 9, 11, 12, 16, 17, 22; are well marked in Cases 3, 5, 6, 21; and are impossible to affirm or deny in Cases 4, 8, 10, 14, 23.

A decision concerning these factors is obviously rendered difficult by the age of the patients and the dispersion of parental acquaintances.

The group of cases with hereditary factors not prominent contains "one aunt insane" (Case 2), "peculiar sister" and "sister with nervous prostration" (Case 9), "maternal aunt insane at

50" (Case 11), "peculiar sister" (Case 12), "brother insane" (Case 16), "mother senile dement three years" (Case 17), "paternal cousin insane" (Case 22). In the group with marked hereditary factors, including Case 3 (neurotic and insane relatives, brother insane), Case 5 (two brothers insane, third a suicide), Case 6 (brother and sister insane), Case 21 (mother neurotic, one maternal uncle imbecile, another intemperate, brother neurasthenic and intemperate), all cases appear to show the probability of hereditary factors emerging in brothers or sisters of the patients in question.

Hereditary factors of more or less importance are present in 47 per cent of the series as a whole, or in 74 per cent of those cases in which reliable histories were obtainable.

Antecedent Factors.

Alcoholism of excessive grade appears to play a part in two cases (1 and 2), possibly also in three more (8, 19, 23), all male cases.

Arteriosclerosis was clinically recognizable in 10 cases, including the following (with age at examination):

2 æt. 65, 6 æt. 70, 9 æt. 56, 11 æt. 70, 12 æt. 68, 15 æt. 58, 16 æt. 65, 18 æt. 58, 19 æt. 70, 22 æt. 55 (slight). Of these cases two only (Cases 2 and 19) gave clinically recognizable arteriosclerosis *together with* a history of excessive alcoholism.

Heart disease was clinically recognized in nine cases (2, 8, 9, 10, 11, 12, 15, 16, 21).

Kidney disease was clinically recognized in nine cases (8, 9, 10, 11, 15, 16, 18, 19, 22).

Heart and kidney disease combined occurred in six cases (8, 9, 10, 11, 15, 16).

Arteriosclerosis, heart disease, and kidney disease combined occurred in four cases (9, 11, 15, 16).

Inflammatory rheumatism is prominent in two histories (7, 11); "grippe and typhoid fever" four years before onset, Case 11; otitis media followed by delirium, Case 9.

Of social factors, business troubles appear in Cases 20 and 21, exhaustion by nursing, Case 16.

Age at Onset and Duration.

		Age at Onset.	Age at Death.	Duration.
1.	M.	57	63	6 y.
2.	M.	63	65	2 y.
3.	F.	56-8	68	10-12 y.
4.	F.	50	72	22 y.
5.	F.	66	72	6 y.
6.	F.	60	77	17 y.
7.	F.	65-70	75	5-10 y.
8.	M.	55	55	brief.
9.	M.	50	56	6 y.
10.	F.	55	55	5 m.
11.	M.	67	70	3 y.
12.	F.	52	69	17 y.
13.	M.	63	67	4 y.
14.	F.	57	70	13 y.
15.	M.	56	58	2 y.
16.	F.	65	65	6 m.
17.	M.	65	65	6 m.
18.	F.	58	58	2 m.
19.	M.	70	71	1 y.
20.	M.	52	52	3 m.
21.	M.	51	54	3 y.
22.	F.	55	59	4 y.
23.	M.	64	72	8 y.

Character of Onset.

The onset was gradual in Cases 1, 2, 3, 4, 6, 7, 10, 12, 13, 15, 16, 17, 19, 21, 22, 23—sixteen cases.

The onset was sudden in Cases 5, 8, 9, 11, 14, 18, 20—seven cases.

Both alcoholics, four of five paranoic cases, one of four delirious cases, two of three maniacal cases and seven of nine depressed cases had a gradual onset.

One of five paranoic, three of four delirious, one of three maniacal, and two of seven depressed cases had a sudden onset. Brief characterizations of onset are:

1. Business failure due to growing amnesia and fabrications.
2. Gradual mental and physical failure, hallucinatory attacks.
3. Unsystematized persecutory, religious and sexual delusion formation.

4. Unsystematized persecutory sexual delusions and auditory hallucinations.

5. Single convulsive seizure ("overcome by heat"). Persecutory delusions one year later.

6. Eccentric and peculiar, persecutory delusions, depressive ideas, auditory hallucinations (?).

7. Persecutory delusions, auditory hallucinations.

8. Unknown. Physical weakness. Visual and auditory hallucinations.

9. Delirium following otitis media, inflammatory rheumatism, physical failure, amnesia, fabrication, unreasonable conduct.

10. Cardiorenal disease.

11. Delirious episodes.

12. Depression and exhilaration in attacks of irregular duration.

13. Slowly developing unreasonable attitude.

14. Psychomotor excitement.

15. Increasing hypochondria.

16. Restless depression while nursing husband.

17. Insomnia, loss of weight, depression.

18. Insomnia, worry, feeling of poverty, hallucinations, persecutory delusions.

19. Depression and suicidal threat.

20. Hard work and business worry.

21. Financial trouble, self-accusations.

22. Psychomotor excitement with depressive ideas.

23. Despondency and suicidal attempt.

General Clinical Features.

The signs of *peripheral* motor or sensory disorder were very few in this series. Case 9 (with defective hearing and vision) was the only case of sensory disorder at all marked. Case 1 showed sluggish pupillary reactions and diminished knee jerks. Case 2 showed ataxia and diminished knee jerks. Case 8 showed knee jerks absent; Case 18, knee jerks exaggerated; Cases 20 and 21, knee jerks unequal.

There are also few instances giving evidence of *focal brain lesion*. Case 3 developed weakness of one arm, with difficulty in

writing and thick speech eight to 10 years after onset of mental disease and two years before death. Case 2 is said to have had a "shock" one month before admission, two months before death. Case 5 is said to have had a convulsive seizure at 65, six years before death. Case 9 is described as having an attack of unconsciousness 23 days before death, followed by nervousness and restlessness.

Hallucinatory disturbances form a feature in 13 of the 23 cases (56 per cent), purely auditory in eight cases (3 (?), 4, 5, 6, 7, 9, 18, 20) and auditory combined with visual in five cases (8, 10, 16, 21, 22). In the other cases, naturally, hallucinations may have been present, but are uncertain. The auditory hallucinations of Case 4 disappeared after two years. Those of Case 18 were features of the onset only.

Delusions characterized, in addition to the five paranoics (3, 4, 5, 6, 7), also Cases 2, 12, 15, 16, 17, 18, 19, 20, 21, 22, that is in 15 cases (65 per cent). Twelve of these showed allopsychic delusions, of which seven (2, 3, 4, 5, 7, 18, 19) showed such delusions in a comparatively simple or uncombined form (delusions of persecution), three (15, 16, 17) showed them commingled with various autopsychic and somatopsychic delusions of a metaphysical sort (feelings of unreality and nihilistic ideas), one (4) developed visceral delusions in addition to allopsychic, and one (21) showed a slight admixture of allopsychic delusions with self-accusatory ones. Three cases (12, 20, 22) show self-accusatory delusions in comparatively pure form. The persecutory delusions in three female cases (3 æt. 56-8 at onset, 4 æt. 50 at onset, 5 æt. 66 at onset) had a sexual tinge. Cases 3 and 6 showed delusions of a religious character. In Case 18 there was onset with worry, insomnia, feeling of poverty, and persecutory ideas; but in the hospital the picture changed or developed into a state characterized chiefly by fear.

Amnesia for recent events characterized Cases 2, 11, and 16 (slight); for both recent and remote events, Cases 1, 8, 9, 10, 19 (slight). Attempts to supply the gaps in memory by fabrications characterized 1, 8, and 9; two of these cases (1 and 8) had alcoholic histories; but the third (9), a drug clerk for 32 years, was a man of originally fair ability and steady habits.

Disorientation in greater or less degree marked the course of eight cases (1, 2, 4 (late), 8, 9, 10, 11, 18), that is in all the cases provisionally called "delirious" (8, 9, 10, 00), in 1 and 2 (alcoholic dementia), 4 (of late development in a case with much cerebral arteriosclerosis and atrophy), and 18 (orientation neglected through absorption by fear?).

Seven of the 23 cases could perhaps be placed in the manic-depressive group. Cases 5 and 12 had attacks of exhilaration and depression. Case 14 remained in a constant elation with psychomotor restlessness, distractibility, flight of ideas and words, for 13 years, till death at 70. Cases 18, 20 and 22 showed depressions, characterized by retardation. Case 23 recovered from his single attack of depression with suicidal attempt at 64, was employed at the hospital as machinist, and died at 72 of tuberculous peritonitis.

Katatonic features were strikingly rare. Two cases of the "paranoic" group (4 and 6) at times showed katatoniform signs which were possibly, however, merely reactive to delusions.

Suicidal ideas were expressed by 15, 21, 22, and *attempts* were made by 19, 20, and 23.

IV. ANATOMICAL SUMMARY.

As bearing upon the relation of these cases to cases of arteriosclerotic brain disease and of senile atrophy, an analysis of the vascular and cardiac findings in this series is especially important. To this we have added the renal findings.*

Four cases (3, 4, 6, 12) showed extensive *general arteriosclerosis*. There was more or less aortic *sclerosis* in 18 cases out of 23. This sclerosis was marked and associated with calcification or ulceration in four cases (3, 4, 8, 9), moderate in five cases (6, 12, 18, 22, 23), slight in eight cases (1, 2, 5, 10, 15, 16, 17 (thrombus), 21), and presumed on collateral evidence (no note made) in one (11). Aortic sclerosis was absent in five cases (7, 13, 14, 19, 20).

* In the correlation of these we have been aided by Dr. E. T. F. Richards, working at the Danvers Hospital under the Proctor Fund of Harvard University.

Arteriosclerosis elsewhere than in the aorta was noted in 12 cases (2, 3, 4, 6, 7, 10, 11, 12, 13, 15, 16, 21). Of these 12, three cases (10, 15, 21) showed a coronary sclerosis, four showed basal cerebral arteriosclerosis (2, 7, 11, 13), and one (16) showed coronary and cerebral (Sylvian) sclerosis.

Three cases (14, 19, 20) showed no sign of arteriosclerosis, two (7, 13) showed cerebral without general or aortic sclerosis, eight (1, 5, 8, 9, 17, 18, 22, 23) showed aortic without other arteriosclerosis.

Considering next the heart, we find *hypertrophy* of the left ventricle in four cases (2, 3 (also right), 5 (also right), 13). It is to be observed that Case 5 showed only slight aortic sclerosis and Case 13 showed only cerebral arteriosclerosis.

Chronic *interstitial myocarditis* occurred in four cases (4, 10, 14, 23), pronounced brown atrophy in three cases (10, 12, 15).

The *valves* are noted as normal in nine cases (6, 7, 8, 9, 13, 15, 16, 17, 18, 21), showed slight changes, largely mitral, in 11 cases (1, 2, 3 (aortic stiff and calcified), 4, 5, 8, 10, 12, 14 (tricuspid and mitral), 19, 23). The valvular conditions are not noted in three cases (11, 20, 22).

Case 3 showed rupture of heart due to thrombosis of coronary artery; Case 4 showed multiple cardiac infarctions; Case 17 showed a right auricle thrombus; and Case 22 showed marked hydropericardium.

The *kidneys* showed *chronic lesions* in 21 out of 23 cases (*i. e.*, except in 5 and 23). But these lesions were slight in 10 cases (1, 2, 3, 8, 9, 17, 19, 20, 21, 22), leaving 11 cases with anatomically marked lesions, (Case 11 is deficient in notes, but is presumed from other evidence to have shown marked lesions). Of these 11, 4 cases showed lesions of the chronic interstitial type (Cases 6, 13, 14, 16), and eight cases showed lesions of the chronic diffuse type (Cases 4, 7, 10, 12, 15, 18), and one case (11) was undetermined.

It is noteworthy that the cases of marked general arteriosclerosis are not those which showed cardiac hypertrophy (except Case 3) but that three of the general arteriosclerotic cases (4, 6, 12) showed well-marked renal lesions.

The brains in order of weight are :

Male.		Female.	
Case No.	Weight.	Case No.	Weight.
19	1240	22	1040
1	1250	4	1110
13	1310	14	1110
23	1310	6	1130
8	1350	12	1135
15	1370	7	1180
21	1410	16	1220
2	1430	10	1300
		18	1330
		3	1365

The weights in 5, 9, 11, 17, 20 are not recorded ; there is reason to believe that Cases 5, 11 were atrophic and that Cases 9, 17, 20 weighed within normal limits (see microscopic notes under casuistic summary).

V. CASUISTIC SUMMARY.

The main clinical and anatomical features, together with histopathological notes, concerning each case have been gathered for convenience in this section. The details of the microscopic examination have been largely omitted.

Emphasis has been laid chiefly on the distribution of pigmented substances in (1) the cells of the perivascular spaces, (2) the neuroglia cells (including satellite cells), and (3) the nerve cells. The pigment referred to is, as a rule, not the yellow pigment occurring as unilocular masses in senile nerve cells, but a more diffuse brownish granular or irregular pigment which when it occurs in nerve cells, is of more general distribution in the cell body. Six or more blocks, representing three or more areas (usually superior frontal, precentral, and occipital) in each hemisphere, were examined in Heidenhain iron-hematoxylin or Marchi preparations along with Nissl sections from the same regions.

Case 1, male, alcoholic, at 57 failed in business, became amnesic, fabricating, disoriented, with sluggish pupils and diminished knee jerks, and died at 63 from ulcerative colitis. Slight aortic sclerosis. Valvular endocarditis. Brain weight, 1250 grams. Considerable subpial gliosis. Moderate perivascular cell pigmentation throughout. Neuroglia cell pigmentation everywhere considerable, but extreme in precentral and calcarine regions. Satellite cell pigmentation in the layer of medium-sized pyramids and in

lower layers of frontal region; characteristically about the Betz cells, but also elsewhere in the cell layers of the precentral gyrus. It is noteworthy that in many instances, though not constantly, the satellite cells are deeply pigmented and at the same time lie adjacent to non-pigmented cells or to cells containing senile yellow pigment masses which fail to stain by the iron-hematoxylin method. The nerve cell pigmentation differs in the three areas. The major pigmentation in the frontal region is found in the layer of medium-sized pyramids and in the layer of large external pyramids; in the latter layer are some instances of what is possibly true pigmentary degeneration (a process, somewhat rare, leading to cell destruction). In the precentral gyrus the Betz cells show intense pigmentation by the iron-hematoxylin method; among these are some instances in which senile yellow pigmentation occurs. In the calcarine cortex it is surprising to find, in view of the marked Betz cell pigmentation of the precentral gyrus, that the solitary cells of Meynert are comparatively free from such pigment. The frontal cortex in this case shows some numerical loss in the layer of small pyramids.

Case 2, male, alcoholic, at 63 began to have attacks of hallucinatory delirium, "shock" (?) two months before death, peripheral arteriosclerosis, speech thick, amnesia for recent events, vague persecutory delusions, emotionally unstable. Coma one week before death. Death from hypostatic pneumonia. Chronic diffuse nephritis. Slight aortic sclerosis. Marked basal cerebral arteriosclerosis. Cardiac hypertrophy. The lower layers of the cortical areas examined show considerable neuroglia cell pigmentation, and the external pyramidal cells are maximally affected by pigmentation. But there is little sign of lesion in the outer cortical layers, except a slight subpial gliosis in the frontal region (there was a slight milkiness of the overlying pia mater grossly observed). Perivascular cell pigmentation moderate.

Case 3, female, developed persecutory delusions of a religious and sexual cast at 56-8, at 66 developed weakness, numbness and tingling in right arm, difficulty in writing, and thickness of speech, recovered from this attack with slight dementia, and died from rupture of the heart at 68. This case showed the most pronounced general arteriosclerosis in the whole series. There is great probability, however, that this was developed, at least in great measure, after the development of the mental disease. Attention may be called to the curious localized sclerosis at the junction of the left precentral gyrus with induration of the underlying white matter: it is probable that this is related with the right arm symptoms just noted (cf., however, also pontine cyst).

Interpretation of microscopic findings is difficult on account of the complicating arteriosclerosis; but inspection of areas, remote from cysts of softening, shows a moderate nerve cell pigmentation and considerable neuroglia and perivascular cell pigmentation of quite general distribution.

Case 4, female, peculiar after 50, slowly developed sexual persecutory delusions, had auditory hallucinations which disappeared after 63, gave less evidence of delusions in later years and showed some katatoniform signs. Death at 72 from multiple infarctions of the heart. General arteriosclerosis was well marked. There were numerous areas of cortical sclerosis as well as cysts of softening in corpora striata and right optic thalamus. In connection with the katatoniform movements, attention may be drawn to a diffuse cerebellar atrophy with marginal sclerosis. The microscopic examination showed, in addition to arteriosclerotic changes, neuroglia and nerve cell pigmentation of a non-characteristic distribution, with moderate perivascular cell pigmentation.

Case 5, female, had a somewhat questionable convulsive seizure at 66, developed gradually at 67 persecutory delusions of sexual and religious character with auditory hallucinations, in hospital showed weeks of exhilaration followed by weeks of depression, showed at no time either amnesia or disorientation, and died at 72 of hypostatic pneumonia, fatty heart, liver, and kidneys, and multiple abdominal tumors. The brain showed atrophy, notably in the frontal and parietal regions. The microscopic examination showed far fewer changes than the gross observations would suggest. The loss of cells was quite diffuse. The Betz cells contained some unilateral or occasionally more extensive deposits of pigment. The frontal and calcarine areas contain little or no nerve cell pigmentation (Heidenhain). The general neuroglia cell pigmentation was prominent, particularly in the calcarine region. Perivascular cell pigmentation slight. It is impossible to say what relation was borne by the slight cerebral atrophy to the paranoid and hallucinatory conditions of this case. The brain weighed 1340 grams and therefore belongs in the overweight series rather than in the underweight series.

Case 6, female, became eccentric about 60, developed persecutory religious delusions, at 70 showed a moderate peripheral arteriosclerosis, showed at two intervals a few katatoniform symptoms (possibly in reaction to delusory fear), developed some delusions concerning viscera, preserved memory and orientation till death at 77 from pulmonary tuberculosis. The cerebral pigmentation in this case (one of the later ones to be examined) was noted in the gross and proved to be the chief feature of the microscopic examination. Brain weight, 1130 grams. Perivascular cell pigmentation moderate throughout. Neuroglia cell pigmentation well marked and general. Practically all the nerve cells are pigmented in the frontal areas, where the layer of external pyramids shows unusually prominent deposits. The nerve cell pigmentation in the postcentral gyri (precentral not accessible) and in the calcarine area is moderate only.

Case 7, female, had inflammatory rheumatism at 55, lay in almshouse by reason of contractures, developed delusions of a persecutory character 65-

70, had auditory hallucinations, preserved orientation, memory, school knowledge, and interest in surroundings till death at 75 from bronchopneumonia and chronic diffuse nephritis. The brain showed basal cerebral arteriosclerosis, was underweight (1180 grams), and showed chronic leptomeningitis. The pigmentation of the perivascular cells was in all regions moderate, there was a moderate pigmentation of neuroglia cells in the white matter. The nerve cell pigmentation was both of the yellow saccular kind and of the diffuse brown kind, and was more marked in the motor areas. We deal in this case once more with a comparatively simple cerebral atrophy.

Case 8, male, alcoholic laborer, luetic (?) at 52, died about a month after the development of weakness, disorientation, amnesia, visual and auditory hallucinations. Ten days before death rectal temperature 91.4; within 24 hours, temperature gradually rose to 101.8. Death in stupor. Ecchymoses of stomach. Chronic diffuse nephritis. Moderate arteriosclerosis. Brain weight, 1350 grams. The nerve cells are free from diffuse pigmentation, although the Betz cells show yellow saccular pigment. The nerve cells of the frontal region are free from pigment. There is a moderate general neuroglia cell pigmentation and a moderate perivascular cell pigmentation. The interpretation of this case remains, so far as we can discover, quite obscure. An alcoholic element is possible.

Case 9, male, developed delirium and inflammatory rheumatism following otitis media at 50, at 54 gave up work, failed physically, showed arteriosclerosis, had an attack of unconsciousness lasting two hours, two weeks before admission to the hospital, in hospital showed amnesia with fabrications, auditory hallucinations, restlessness, and weakness, and died at 56 of hypostatic pneumonia and fatty heart. Arteriosclerosis was confined to the aorta. The brain weight was not recorded but was probably within normal limits. The microscopic examination showed a considerable general neuroglia cell pigmentation; but the nerve cells are as a rule free from either diffuse brownish pigment or yellow saccular pigment. The satellite cells are as a rule free from pigment. Perivascular cell pigmentation everywhere moderate.

Case 10, female, 55, had shown effects of cardiorenal disease for six months, in hospital showed disorientation, amnesia, visual and auditory hallucinations, feebleness and restlessness, and died 12 days after admission from the effects of her somatic disease. Brain weight 1300 grams. The microscopic examination showed a subpial gliosis of the frontal region, a general perivascular cell and neuroglia cell pigmentation, and in all regions examined a tendency for the cells in the external pyramidal layer to show considerable diffuse brownish pigment. The satellite cells also showed similar pigmentation. The Betz cells of the precentral gyrus were less markedly pigmented than the external pyramids.

Case 11, male, had inflammatory rheumatism in early life, gave up work 66-67, from 67 to 70 had two short delirious episodes, entered the hospital with pronounced cardiorenal signs, disoriented, amnesic for recent events, and died at 70. The brain showed focal basilar and unilateral Sylvian arteriosclerosis, with a cyst of softening external to tip of posterior cornu of right lateral ventricle. There was a dense subpial gliosis. There was a moderate and somewhat variable neuroglia cell pigmentation throughout the regions examined. The accumulation of pigment in perivascular cells is everywhere moderate. A remarkable feature of this case is the almost total absence of nerve cell pigmentation in all the areas examined.

Case 12, female, from 52 had attacks of exhilaration and depression of irregular duration, at 68 showed arteriosclerosis and malnutrition, and died at 69, maintaining memory and orientation almost to the last. There was a terminal exhaustion period of gradual onset of several months' duration. Death from hypostatic pneumonia, pleurisy, pericarditis, and mediastinitis. General arteriosclerosis was marked. Chronic diffuse nephritis. General encephalomalacia and myelomalacia (of terminal infective or toxic origin?). The brain weighed 1135 grams. There was a frontal (including orbital) and central convolutional-sclerosis. Corresponding therewith subpial gliosis was considerable. Perivascular cell pigmentation is nowhere extreme and is as a rule slight. Neuroglia cell pigmentation, practically absent in white matter and in subpial zone, is prominent in the nerve cell layers and especially in the stellate region. The neuroglia cell pigmentation is shown in its extremest form in the calcarine region. Satellite cell pigmentation is nowhere marked. The nerve cells rarely show more than a unilateral collection of small granules or a few peripheral granules. No distinction between large and small cells can be remarked with respect to this dark pigment.

Case 13, male, developed at 63 an unreasonable attitude to his family, with flight of ideas and violent tendencies, and, on transfer to insane hospitals maintained his abusive and annoying conduct, elation, and psychomotor activity for four years. Death from multiple injuries at 67. The brain showed chronic pial changes, notably along vessels, a basal cerebral arteriosclerosis of moderate degree, atrophy of the frontal cortex, and a focal area of softening of one paracentral lobule. The microscopic examination showed neuroglia cell pigmentation in the white matter and in the subpial region, but to a great degree absent from the nerve cell layers (frontal). There was a moderate degree of perivascular cell pigmentation throughout. The nerve cells were in almost all instances quite free from any type of pigment. In a few nerve cells occurred a small collection of pigment granules on one side of the cell. The distribution of the neuroglia cell pigmentation (in the subpial region and white matter) seems to indicate its origin in myelin decay. The occipital cortex, though it showed no gross atrophy, showed a slight degree of microscopically observable subpial pig-

mentation. The white matter of the occipital region was largely free from pigment. The precentral gyri form an exception to the general rule of pigment absent in nerve cells, since occasional large cells (Betz and external pyramids) show considerable pigmentation.

Case 14, female, became maniacal at 57 and remained so till death at 70 of generalized tuberculosis. The brain weighed 1110 grams and showed a subpial gliosis, well marked in frontal and extreme in central regions. The white matter and the subpial region showed a moderate neuroglia cell pigmentation in all regions examined. Perivascular cell pigmentation was moderate throughout. Conditions varied with respect to nerve cell pigmentation; the external pyramids of the frontal region, the Betz cells of the precentral gyri, and the solitary cells of Meynert in the calcarine region contained much diffuse brownish pigment. A remarkable feature of the frontal sections was that, although the internal pyramids showed far less pigmentation than the external pyramids, the neuroglia cells of the internal pyramidal layer were much more highly pigmented than the neuroglia cells of the external pyramid layer. Yellow pigment was also very prominent in the precentral large cells. The smaller nerve cells nowhere showed much pigmentation. The interpretation of these microscopic findings is difficult and doubtless impossible with the data at hand.

Case 15, male, became hypochondriacal at 56, later restless and suicidal, was committed, maintained memory and orientation, and developed feelings of unreality and nihilistic ideas. Death at 58 from chronic diffuse nephritis. Brain weight, 1370 grams. The microscopic examination failed to show nerve cell pigmentation, but showed a slight satellite cell pigmentation in the frontal region. Some of the large cells of the precentral gyri showed pigmentation, and there was both satellite cell and general neuroglia cell pigmentation in this region. Elsewhere a moderate general neuroglia cell pigmentation and perivascular cell pigmentation.

Case 16, female, became depressed at 65 after nursing husband, showed arteriosclerosis and albuminuria, developed increasing defect of attention and amnesia for recent events, auditory hallucinations, and feelings of unreality, agitation, and insomnia. Death from infection following accidental wounds six months after commitment. Brain weight, 1220 grams. A single patch of sclerosis was found in the right Sylvian artery. The microscopical examination showed very little perivascular cell pigmentation. The neuroglia cell pigmentation is moderate and begins to be prominent only in the layer of external pyramids. Nerve cell pigmentation, slight in frontal and calcarine areas, is more extensive in the motor area. The external pyramids of the frontal and the Betz cells show more pigment than other nerve cells, and the brownish pigment is combined with yellow pigment in these cells.

Case 17, male, had had delirium in grippe and typhoid fever at 61, became depressed, sleepless, and thin at 65, developed feelings of unreality and nihilistic delusions and died within six months of onset with cystitis, retroperitoneal suppuration, thrombosis of right auricle and of aorta, and pulmonary embolism. The microscopic findings yielded a suspicion of paralytic dementia from the occurrence of a moderate lymphocyte and plasma-cell exudate in the meninges (normal in the gross); but the absence of notable alterations in the nerve cell layers seems to exclude this suspicion. Perhaps the extensive suppurative process in the trunk may be related with the meningeal exudate. The large nerve cells failed to show brown pigmentation (notably the Betz cells and the solitary cells of Meynert), but the smaller nerve cells (such as those of the outer cell layers) showed well-marked brown pigmentation. The neuroglia cell pigmentation and that of the perivascular cells presented nothing characteristic, being moderate and of general distribution.

Case 18, female, developed at 58 insomnia, hallucinations, persecutory delusions and financial worry, showed peripheral arteriosclerosis, albuminuria, exaggerated reflexes, remained apprehensive, imperfectly oriented, and tardy in answering questions, and became increasingly depressed and restless, dying, two months after onset, of enteritis. There was thrombosis of a branch of the right Sylvian artery. Brain weight, 1330 grams. Microscopic examination showed slight perivascular cell pigmentation, considerable neuroglia cell pigmentation in the nerve cell layers, and extreme nerve cell pigmentation rather more characteristically in the substellate layers but sparing neither large nor small cells. (The calcarine region was not accessible in Heidenhain preparations.) Satellite cell pigmentation was variable in degree: near some cells maximal, but in general not much in evidence.

Case 19, male, alcoholic in early years, at 70 grew depressed, threatened, and finally attempted suicide. He was anemic and showed peripheral arteriosclerosis, somewhat retarded in responses, slightly amnesic, deluded concerning family, and constantly depressed. Death after gradual physical failure from acute pleurisy developing upon chronic pulmonary tuberculosis with apical abscesses. There was basal cerebral arteriosclerosis, focal atrophy of one opercular region and chronic internal hydrocephalus. Brain weight, 1240 grams. Microscopically, gliosis of the outer layer was marked. Perivascular cell pigmentation was moderate or slight. Neuroglia cell pigmentation was everywhere marked. And, although the nerve cells nowhere contain much brown pigment, the satellite cells in many places show much brown pigment. The large nerve cells of the frontal and precentral gyri contain much yellow saccular pigment.

Case 20, male, attempted suicide at 52 after financial worry, shortly improved, but grew depressed once more, developed auditory hallucinations,

and was committed in a feeble, apprehensive, retarded, partially oriented state. Frightful auditory hallucinations. Self-accusations. Restless agitation. Death three months after onset, from aspiration pneumonia. There were no gross lesions in the brain. Microscopically, perivascular and neuroglia cell pigmentation were slight or moderate throughout. The subpial region of the frontal gyri contains neuroglia cells enclosing very large pigment granules. Nerve cell pigmentation moderate, though some of the large cells of the calcarine region have considerable brown pigment. There are small local accumulations of brown pigment granules in some cells. The large nerve cells of the precentral gyri contain little pigment.

Case 21, male, after two years financial trouble, grew depressed and self-accusatory and expressed fear of injuring family or himself, on admission six months later, showed tuberculosis of lungs, unequal knee jerks, depression, slow motions, auditory hallucinations. Memory and orientation were maintained until death at 54, from bilateral advanced pulmonary tuberculosis. Brain weight, 1410 grams. One olfactory tract absent. Microscopically, considerable perivascular and general neuroglia cell pigmentation. The nerve cells, especially those of the external pyramidal layer, were loaded with brown pigment.

Case 22, female, developed at 55 restlessness, self-depreciation, suicidal ideas, showed arteriosclerosis and albuminuria, on commitment, and then developed a depressed inactive state with distressing visual hallucinations at night, became retarded, but preserved orientation and fairly good memory until death at 59. Acute purulent pericarditis. Atrophy of liver (simple), 760 grams. Renal atrophy. Brain weight 1040 grams. Microscopically, perivascular cell pigmentation slight, neuroglia cell pigmentation slight except in the frontal subpial region where it is moderate and in the calcarine region where it is marked. The nerve cells are characteristically free from pigment. The Betz cells are likely to show a few pigment granules round the periphery and occasionally show extreme pigmentation.

Case 23, male, alcoholic in early years, 10 years temperate, became depressed and attempted suicide at 64, recovered in a few months, worked at the hospital as machinist and died at 72 of tuberculous peritonitis. The brain showed slight chronic fibrous leptomeningitis weight 1310 grams. Microscopically, there was slight perivascular cell pigmentation. The neuroglia cell pigmentation is general and intense. The nerve cells tend to show granules in all parts of the cell body. The larger cells tend to show relatively less pigment.

VI. (A) CORRELATIONS WITH ARTERIOSCLEROSIS.

Arteriosclerosis was clinically recognizable in 10 cases and was found anatomically in 20 cases. There was marked general

arteriosclerosis in four cases, aortic sclerosis in 18, sclerosis elsewhere than in the aorta in 12. Nine cases showed cerebral arteriosclerosis.

Heart disease was clinically recognized in nine cases, anatomically in 12 cases.

Kidney disease was clinically recognized in nine cases, anatomically in some degree in 21 cases, but markedly in 11 cases.

The cases of marked general arteriosclerosis are not those which show cardiac hypertrophy (except in Case 3), whereas three of the marked arteriosclerotics (not including Case 3) show well-marked kidney lesions.

It does not appear from a review of the histories in the four well-marked arteriosclerotics that arteriosclerosis had necessarily anything to do with the insanities. The durations of insanity in these cases were 10-12, 22, 17, and 17 years, respectively, and their ages at death were 68, 72, 77, and 69, respectively. These cases have with one exception (Case 14, 13 years) the longest durations in the series.

The onset was gradual in 16 cases, sudden in seven cases.

There were but seven cases with peripheral motor or sensory disorder; these disorders were largely trivial in character. Knee jerks were absent in one case, unequal in two.

Evidences of focal brain lesion were clinically found in four cases, one 8-10 years after onset, one a doubtful "shock" two months before death, one a single convulsive seizure six years before death, one a period of two hours' unconsciousness 23 days before death.

Anatomically, only one of these four showed focal lesions (Case 3), but four others (Cases 4, 11, 13, 18) showed focal lesions unsuspected during life.

Of the four well-marked arteriosclerotic cases, three were paranoic and one maniacal. Of the five cases with cysts of softening in various regions, two were paranoic, and one each delirious, maniacal, and depressive cases.

There seems to be no good ground for asserting that arteriosclerosis runs parallel with these insanities or has much more than a complicating relation to them. It remains, of course, possible that arteriosclerosis may, sometimes and under certain con-

ditions, bring about the structural and functional necessities for the development of insanity; but this point will be exceedingly difficult to prove.

(B) CORRELATIONS WITH SENILE ATROPHY.

Do these cases stand in a closer relation to senile atrophic processes than to the arteriosclerotic processes just considered?

The weights of 18 brains in this series are recorded; and atrophic processes in the others can be decided safely from notes or microscopic description. Seven (probably eight) of the female brains weighed less than 1235 grams, three weighed over 1235 grams, five (probably six) of the male brains weighed less than 1358 grams, three weighed over 1358 and three were not recorded but probably weighed within normal limits.

The seven (probably eight) underweight female brains all weighed less than the lightest male brain. The lightest brain (Case 22, 1040 grams, representing a diminution of about 15 per cent from the average weight) occurred in a case with liver weighing but 760 grams and with very small kidneys. The duration of mental disease in this case was four years. The durations in the remaining underweight female brains were (four, 1110 grams, 22 years; 14, 1110 grams, 13 years; six, 1130 grams, 17 years; 12, 1135 grams, 17 years; seven, 1180 grams, 5-10 years; 16, 1220 grams, six months; five regarded as atrophic, six years). Such durations indicate the possibility that the atrophy supervened upon the mental disease in several instances; but the conditions in Case 22 seem remarkable. In the female cases with overweight brains, the data are: 10, 1300 grams, five months, æt. 55; 18, 1330 grams, two months, æt. 58; three, 1365 grams, 10-12 years, æt. 68.

In the case of the male brains, the deviations are not so great, and the durations are far briefer (19, 1240 grams, one year; one, 1250 grams, six years; 13, 1310 grams, four years; 23, 1310 grams, mentally capable at death; eight, 1350 grams, brief; 15, 1370 grams, two years; 21, 1410 grams, three years; two, 1430 grams, two years; nine, probably normal weight, six years; 17, probably normal weight, six months; 20, probably normal weight, three months).

It therefore appears that, though there is much more atrophy in these female brains than in the male, the duration of life beyond the onset of mental disease is also far greater in these females. It is therefore, natural to suppose that the atrophy is here a function of longevity rather than one of mental disease.

(C) DISTRIBUTION OF CORTICAL PIGMENTS.

Inclined to the conviction that both arteriosclerosis and atrophy are merely complicating features in the insanity of these sub senile decades and that we must look elsewhere for the causes and structural conditions of the insanities here discussed, we examined the tissues with a view to obtaining further light from the microscopic side. Aside from the apparently non-essential degenerations and tissue losses incidental to arteriosclerosis and atrophy, are there any essential alterations, either destructive or non-destructive, involving cells or fibers or the investing neuroglia in these conditions?

We had previously described three cases (one of which, Case 17, is reproduced in this paper) of depression in which the factors of arteriosclerosis and simple atrophy could reasonably be excluded from a causative rôle. In these cases our attention had been especially levelled at certain intracellular pigmented substances. These substances, demonstrable in several ways, were particularly well brought out in Heidenhain iron-hematoxylin preparations after alcohol fixation.

The interesting feature of the former study was that these pigmented substances were accumulated largely in the bodies of the smaller nerve cells in various cortical regions, perhaps more particularly in the suprabellate nerve cell layers. The large cells, such as the Betz cells of the precentral gyrus and the solitary cells of Meynert in the calcarine region, were free from these substances.

The confinement of these deposits to the smaller cells and their absence from the large (projection) cells suggested an attractive line of attack on the histology of the cortex in mental and other disease. We have, therefore, paid especial attention to these intracellular deposits in the present series of cases. The deposits of pigmented substances which can be brought out by the Heiden-

hain iron-hematoxylin method are found in (1) cells of a phagocytic character lying in the adventitiæ of vessels, (2) neuroglia cells, (3) nerve cells.

Our results in this field are so far wholly qualitative and are based upon estimates of the iron-hematoxylin staining substances in comparatively few areas from each case, as a rule frontal, precentral, calcarine. So far as our results go, however, they are of some interest.

Perivascular cell pigmentation was a constant feature in all 23 cases. We interpret this to mean merely that certain products of tissue metabolism are not being discharged completely from the tissues. And it is our general experience, in accord with that of others, that pigmented material is perhaps constantly found in the perivascular regions of the brains of persons of middle age. It is not an infrequent feature in brains of persons, regarded as normal, in the fifth decade. It is a remarkable feature of our results at this stage that the perivascular cell pigmentation is of fairly even degree in all the areas examined from any one case and that, consequently, the perivascular deposits do not afford an index of the varying metabolism of different areas of the cortex. It is possible, however, that investigation of further cases will reverse this conclusion.

Not every case in our series showed the same degree of perivascular cell pigmentation. Both the male case with lightest brain (19) and the female case with lightest brain (22) showed slight perivascular deposits. The tissues showing least perivascular deposits were from Case 16, female, æt. 65, an agitated sleepless melancholic, with brain weight 1220 grams.

There are more significant variations in the *neuroglia cell pigmentation*, which like the perivascular deposit was shown in every case. Whereas the perivascular deposits seemed to occur in similar amounts in all areas of a given cortex, the neuroglia cell deposits in several cases varied in degree from area to area: in particular, three cases (1, 5, 22) showed more extensive deposits in the calcarine and occipital neuroglia cells, and Case 1 also showed extensive deposits in the precentral area. The significance of such variations is not apparent.

Intragyrar variations in the degree of neuroglia cell pigmenta-

tion were noted in seven cases. In only one of these (Case 11) were the variations of an irregular and apparently capricious character. In Case 13 the frontal cortex showed little or no neuroglia cell pigmentation in the nerve cell layers, but considerable in the subpial zone and in the white matter: this may probably show that the neuroglia cell pigmentation is an index of myelin decay in some instances. Opposite conditions held in Cases 12 and 18, where the neuroglia cell pigmentation was more or less sharply confined to the nerve cell layers. Still more differential conditions were found in Case 14, where the neuroglia cells of the layer of internal pyramids were more highly pigmented than those of the layer of large external pyramids, and in Case 16, where the neuroglia cell pigmentation began to be marked only in the layer of large external pyramids and in lower layers.

The most marked neuroglia cell pigmentation occurred in Cases 19 (a depressed case, æt. 70, formerly alcoholic) and 23 (a depressed case formerly alcoholic, for seven to eight years without active mental disease, dead at 72). The least extensive deposits in neuroglia cells occurred in Case 20 (a depressed case, not alcoholic, dead at 52, after three months' symptoms). The factors of age and alcoholism may possibly therefore influence these deposits in the bodies of the neuroglia cells.

More striking variations are shown by the amounts and distribution of iron-hematoxylin-staining *pigment in the nerve cells*. Although it is probable that no brain was absolutely free from traces of such pigmentation, yet four cases (eight æt. 55, nine æt. 56, 11 æt. 70, 19 æt. 71) showed extremely little pigment in the nerve cells. Of these, eight showed the "senile" yellow pigment in the Betz cells and 19 showed yellow pigment in the larger nerve cells of both frontal and precentral gyri. Case 19 was also remarkable in that the satellite cells were often highly pigmented whereas their adjacent nerve cells were pigment-free. The almost total absence of pigment in 11 is surprising in the presence of focal arteriosclerotic lesions and atrophy.

Cases 5 æt. 72, 12 æt. 69, 13 æt. 67, 15 æt. 58, 22 æt. 59, form a group in which a slight but noteworthy amount of nerve cell pigmentation occurred. In 13, 15, and 22, the precentral area showed considerable pigment whereas other areas were compara-

tively free. It is a curious coincidence that all three of these cases showed conduct disorder (13 destructive and violent, 15 and 22 suicidal).

More marked pigmentation with some stratigraphic variation is shown by a group of 11 cases (1, 2, 6, 7, 10, 14, 16, 17, 18, 20, 23). The suprastellate layer of pyramids seems to be marked for special pigmentation (Cases 2, six (frontal), 10, 14 (frontal), 16 (frontal)). Of these cases, five (2, 6, 10, 17, 23) belong in the class (described in our former paper on melancholia), of cases in which the large (projection) cells are relatively pigment-free, whereas the smaller cells are pigmented. Cases 20 and 22 show the opposite relations. Case 1 showed pigment in the Betz cells but the homologous solitary cells of Meynert were pigment-free.

VII. CONCLUSIONS.

Arteriosclerosis and *senility*, separately or combined, have been very handy terms in psychiatric diagnosis. However, we believe we have proved conclusively, by the present analysis, that neither old age changes nor arterial disease have any necessary connection with the development of insanity in the later years of life, at least in the sixth and seventh decades. It seems probable that *arteriosclerosis*, *senility*, and various forms of *insanity* are entities which frequently interpenetrate, but are logically and genetically quite separate. Even the degree to which old age and arterial disease serve as *complicating factors* in insanity has been much overestimated.

The constructive part of our paper looks in the direction of the distribution of intracellular pigments, a species of work harking back to the somewhat neglected field of Bevan Lewis (1890). The perivascular cell pigments, according to our comparisons, seem to afford some index of the degree of faulty metabolism of the cerebral tissue: these pigments are deposited in like amounts throughout a given brain. The neuroglia cell pigments, in the light of the present material, vary rather with the age of the individual. The nerve cell accumulations are subject to the greatest variations even in a single brain, certainly do not vary with the age of the individual, and vary according to some undetermined principle.

We have omitted literary references in the present paper, but wish to express our gratitude to Prof. A. M. Barrett for the use of some of his Danvers Hospital material. Our work may be regarded as in some sense a complement to Barrett's Study of Mental Diseases Associated with Cerebral Arteriosclerosis (*Am. Jour. Insanity*, LXXII, 1, 1905). Our cases are from the same general source as Barrett's cases, but are in no instance identical therewith.

It would be of some value to fuse with the present analysis a similar analysis of the frankly organic cases of the same epoch, in order to pick out, if possible, the special constituents of the mental picture produced by the gross lesions. This task we have in hand.

Our results briefly are:

1. Twenty-three cases of insanity, presumed to arise in the sixth and seventh decades, have been studied clinically and anatomically. Two of these were alcoholic in origin. Five were paranoic. Four were cases of delirium. Three were maniacal. Nine were cases of depression.

2. Two of the paranoic cases developed katatoniform symptoms and might be placed in the dementia præcox group.

Seven cases are possibly classifiable in the manic-depressive group. Two of these had attacks of retardation. One case remained maniacal for 13 years. One case recovered from a single suicidal depression and died eight years later of intercurrent disease.

3. Neither general nor cerebral arteriosclerosis bears an essential causative relation to the insanities developed in the sixth and seventh decades by the 23 cases clinically and anatomically studied.

4. The insanities arising in these decades are not characteristically due to the premature onset of senile atrophy. Eight out of 11 female brains were atrophic: the average age at death was 69.8; the average duration 10.8 years. Five out of 12 male brains were atrophic: the average age at death was 65.6; the average duration 2.7 years.

Either the female cases are more liable to brain atrophy and to live longer with atrophied brains or else the atrophy is merely

a function of their greater age at death. The average age at death in all 11 females is 67.2; the average duration 8.8. The average age at death in all 12 males is 62.3; the average duration 2.8. The differences in age at onset: female average 58.4 (atrophics, 59.8), male average 59.5 (atrophics, 62.9), are not great.

5. A comparative study of the distribution and extent in several cortical areas of certain pigmented materials demonstrable by iron-hematoxylin (among other methods) brings out extreme and interesting variations in the cases examined.

Perivascular cell pigmentation is almost uniform in different areas of the same case, bar focal destructive lesions, but varies in degree in different cases.

Neuroglia cell pigmentation, when of general distribution, probably varies more or less directly with age.

Nerve cell pigmentation (iron-hematoxylin) is not a function of age. It is premature to relate the amounts and distributions of nerve cell pigments with different mental diseases.

DISCUSSION.

DR. MILLER.—I feel that the paper should not go undiscussed. I think it is a very important contribution to psychiatry. There is simply one question I would like to ask in connection with the paper. In view of the recent work of Dreyfus on Melancholia in which he has apparently proven that the condition we speak of as melancholia is simply a form of manic depressive insanity, I would like to ask if in their material there was any anatomical similarity between the cases of the depressed type of manic depressive insanity and those cases which they diagnosed as involution melancholia.

DR. SOUTHARD.—Dr. Miller's question suggests comment on Dreyfus' *Die Melancholie, Ein Zustandsbild des manisch-depressiven Irreseins*. Dreyfus' work is almost purely clinical, embracing among 81 patients studied, 39 deaths, with three autopsies. Of these three autopsies, one showed cerebral atrophy and chronic leptomeningitis and two showed arteriosclerotic brain disease. As a critic has recently observed, this book of Dreyfus' is the first accessible source of extended data by which we may judge Kraepelin's diagnoses. There is as yet no systematic source from which we may learn the autopsy results in Kraepelin's Heidelberg clinic. Kraepelin is himself far less insistent on the final character of his clinical schemes than some of his followers have been. An ultimate judgment would be greatly helped by systematic publication of autopsy results from several psychiatric clinics.

DR. H. A. COTTON.—What interests me, in connection with the anatomical part of this paper, is the pigmentation of the nerve cells. I began some work along the same line in Dr. Alzheimer's laboratory at Munich, which has not been published as yet. It will probably come out in the publication from that laboratory.

The work was to determine the fatty degeneration of the nervous elements of the cortex in all of the psychoses. We worked up many cases of each psychosis, and found some very interesting changes which had not been described before. The subject is one which needs a great deal of work to make it valuable. Too little is known of the normal pigmentation of the nervous tissue as yet to base much of an opinion upon the pathological changes. It is probably some metabolic change which takes place, or a bio-chemical change. At any rate, the structure of the nerve cell is changed, and, as a rule, these changes cannot be shown by the Nissl method alone. In very marked accumulations of fat in the cells, such as is seen in senile dementia, the Nissl method alone shows the presence of this pigmentation. The other changes which are very profound are not shown at all by the Nissl method. The method we have used is known as the Herkheimer stain for fat, and the basis of the stain in Scharlach R. We assume the substance in the cell to be fatty pigment, because it can be extracted by alcohol, ether or chloroform, and in the technique of this method it is very important that the cortex should not be hardened by using any of the above solutions. Formalin is used, and the sections cut with a freezing microtome.

The idea of the work was to find the fatty contents of the nervous tissue in different psychoses, and if possible, to find the different forms of pigmentation, and also the location of the pigment in the cell; for instance, in dementia præcox we found in one region very marked fatty degeneration in that part of the cell protoplasm above the nucleus (Nissl's Kornkappe). We not only examined the abnormal brain tissue from different psychoses, but various animal cortices as well, to find the normal contents of fat in the nervous tissue. We found an absence of fatty pigmentation in the nervous elements of the cortex of all animals except in those which were very old. As an example, we found it in a senile horse, 26 years of age, but in all other animals it was absent, showing that the fatty pigment is not necessary to the life of the cell, but can be considered as a pathological change.

Of course, our results at present are merely tentative, and we cannot tell exactly of what value the work will be until we have examined normal brains as a control on our abnormal material.

DR. MITCHELL.—We found in going over the case histories that we had several patients developing their first attack after 70 years of age, who showed undoubted maniacal conditions, exhibiting excitement, distractibility and flight of ideas, the disease running the ordinary manic course, and not followed or complicated by any marked dementia before

death occurred. We also found several cases of depressed states older than those we have considered. These cases closely resemble those described, but were not included because they had passed beyond the age limit we arbitrarily established.

From our analysis of case histories it is quite apparent that in old age we have forms of insanity that are not essentially different from those seen in earlier life. Insanities arising during this period have not always been satisfactorily described, and I wish that others might make similar studies, reporting what they find rather than trying to fit these cases into any established classification.

DR. JELLIFFE.—Many will recall the work of Obersteiner on fatty degenerations, first published in 1892. Since this time but little advance has been made because of the lack of newer technical methods of investigation. This situation has been remedied of late, and in the present study some important deductions have been made possible by these newer methods. While in Munich in 1906, I was greatly interested in Dr. Cotton's work along these newer lines, and feel that in the recent fat stains new weapons have been forged which will undoubtedly give us important outlooks.

THE PROPER SIZE OF HOSPITALS FOR THE INSANE.

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The question as to the proper size of a hospital for the insane, for the attainment of the best results in care and treatment, is one which has long been discussed.

On June 18, 1850, a committee of the Association of Medical Superintendents of American Institutions for the Insane was appointed and instructed to report at the meeting in 1851 a series of propositions relative to the structure and arrangements of institutions for the insane which would express the well-ascertained views of that body in reference to points upon which there was unanimity of opinion. Twenty-six propositions were reported, upon which all were agreed, and many of them are as pertinent to-day as they were nearly sixty years ago. I will not detain you with all of these propositions, although they are well worth reading, but will refer only to No. V, which says: "The highest number that can with propriety be treated in one institution is 250, while 200 is a preferable maximum," and No. VII, which says: "Every hospital having provision for 200 or more patients, should have at least eight distinct wards for each sex."

For more than 15 years these propositions remained unchanged and during that time the small institution with its small wards, and preponderance of single rooms, remained the standard for asylum construction in this country. In 1866, owing to the difficulty of providing for the increasing number of insane, and after an acrimonious debate by members of the Association in regard to the care of the chronic insane in separate institutions, which was caused by the passage of the act authorizing the establishment of the Willard Asylum, Dr. Nichols offered the following resolution: "The enlargement of an institution for the insane, which, in the extent and character of the district in which it is situated, is conveniently accessible to all the people of such district, may be properly carried to the extent of accommodating 600

patients, embracing the usual proportions of curable and incurable insane in a particular community."

This resolution did not stop the building of the Willard Asylum but it did for more than two decades limit, to 600 beds, the size of all institutions which were supposed to treat and cure the insane. There was no great increase in the size of any of the existing institutions in the State of New York, with the exception of Willard, which was established for the care of the chronic insane only, and the asylums controlled by the counties of New York and Kings, which cared for the insane of the Metropolitan district, until the passage of the State Care Act in 1889. With the passage of that act, however, the demand for immediate State provision for those who were being cared for in the county-houses became so urgent that there seemed nothing left but to enlarge as speedily as possible the existing institutions, which soon became the vast "caravansaries," as they have been aptly called, from which we now suffer. America, in its hospitals for the insane, as in everything else, took readily to the idea of "bigness" and many of our hospitals exceed in size anything to be found in any other country of the world. Owing to the lesser cost of this style of construction, on account of the large wards and dormitories and associated dining rooms, this type of building rapidly gained favor, in the eyes of those who considered only the initial cost; but a reaction came as soon as experience demonstrated the disadvantages of this plan and to-day the majority of thoughtful and experienced alienists believe that neither the interests of the State nor those of the patient are best served by the present methods of herding the insane in vast wards and dormitories with from 50 to 150 patients in each. In England, where huge institutions at first found great favor, a reaction has also come. Dr. Richard Greene, late superintendent of the Berry Wood Asylum, Northampton, in a thoughtful paper on "The Insane, the Asylum and the Nurse," says: "I need hardly point out that the mere size of an asylum has much to do with the amount of the maintenance-rate, and it would seem that the very large and the very small are the highest. Putting aside the very small ones and dividing the rest into two classes, one between 600 and 1200 beds and the other from 1200 to the highest limit yet attained, say 2400, we

should find that in the first section the average maintenance-rate was 8 s. 4½ d. and in the other section it was 9 s. 2 d. a week. As there are 33,000 in the latter section, a simple calculation will show that there is a wholly unnecessary loss to the nation of £95,000 a year. I have emphasized the money side of the question, but waste of money is not the only objection to these gigantic asylums, and if any of my audience here to-night possess influence with the Home Secretary, I hope they will entreat him not to sanction the erection or extension of any asylum beyond 1000 beds or at the utmost 1200."

While an analysis of the maintenance-rates in the various hospitals of New York State does not support Dr. Greene's contention altogether, it does lead to some very interesting conclusions. I have carefully examined the figures relating to the net per capita cost of support in the different institutions for the fiscal year ending September 1, 1907, and I find that they make an excellent showing for the smaller hospitals. If we take the four largest hospitals in the State with a total population of 13,699 patients and an average population of 3425 for each institution, we find that the average per capita cost is \$170.13 per year, while with four of the small institutions with a total population of 4702 or an average of 1175 for each, we find that the average per capita cost is \$169.95 per year. A still better showing is made if we take the lowest net maintenance-rate in any of the smaller hospitals, which is \$148.40, and compare it with the lowest net rate in any of the larger hospitals, which is \$157.54, for here we find a difference of \$9.14 per capita per year in favor of the smaller institution.

These net figures are obtained by deducting from the gross cost of maintenance the amount collected by each hospital for the support of those patients whose friends are able to fully or partially reimburse the State and, therefore, should not be used without qualification, as the location of the hospitals and the social grade of the patients have more to do with this question than numbers. They are presented merely to show the fallacy of using numbers alone and that by one process of reasoning at least the small hospitals support their patients at a lower per capita cost to the State than the large ones.

Now if we take the gross cost of maintenance in the four smaller hospitals, with an average population of 1175, we find that the average cost is \$191.35 per year; the three hospitals with a population ranging between 1500 and 2000 have an average rate of \$190.88; those with a population ranging between 2000 and 3000, \$191.48, while the four largest with an average production of 3425 have an average rate of \$178.93. We thus see that a population of about 1500 gives as great economy as it is possible to get until we extend the institution to twice that number.

If we take all the institutions with a population of less than 1500 we get an average yearly per capita cost, as before stated, of \$191.35, while if we take all of the institutions with a population of more than 1500 we get a general average of \$183.48, a difference in favor of the large institutions of a little less than \$8.00 per capita per year. If we try to discover where this difference is we find that the average per capita cost for medical service in the four smaller hospitals is \$13.42 while in the four larger hospitals it is only \$8.00 per year; the average cost of the ward service in the former is \$36.54 while in the latter it is \$33.93. We thus find that the two items of medical service and nursing show a difference sufficient to account for the whole saving. And where is there a medical man who is willing to say that all economies should be effected in medical care and nursing unless he is willing to see our institutions lose their hospital character altogether and become vast boarding houses instead of the curative establishments which we should strive to make them?

In New York State where the financial management of the hospitals is practically on a uniform basis, and where, on account of the system provided for the "joint purchase" of supplies, the small hospital is placed on an equal footing with the large one, there would seem to be but little reason for mammoth institutions.

When we analyze the results of treatment we find that the percentage of cures, computed upon the original commitments, was 26.78 per cent in the four smaller hospitals, while 21.26 per cent were discharged as improved, making a total of 48.04 per cent who were restored to home and friends. In the four largest hospitals the percentage of cures was 24.45 per cent, while 20.08 per cent were discharged as improved, making a total of 44.53 per

cent which gives a result of more than 3.50 per cent in favor of the smaller institutions. The deaths were very close, the percentage being 34 per cent in the former and 33.96 per cent in the latter. As it is generally conceded that the recovery of a patient is a saving to the State, no matter at what cost it may be effected, the percentage of cures is a very important fact to consider, for if the smaller hospitals restore to lives of usefulness 3.50 per cent more than the larger ones the amount saved by the latter in the yearly per capita cost does not mean so much after all.

The figures which I have given show beyond doubt that many things besides numbers enter into the highness or lowness of the maintenance-rate and in making any comparison there should be considered in addition to the number cared for, the localities of the hospitals, the character and sex of the patients, the facilities and rates for getting in large commodities, such as coal, flour, beef in car-load lots, etc., the productiveness of the land cultivated by the hospitals, the character of the crops which each can raise, and the availability of the immediate market for the purchase of supplies which the hospital lands do not furnish; and above all else consideration should be given to a comparison of the standard of treatment and care not only of the curable cases but of those who are in the chronic stage. Cases of recovery after one or two years of care and treatment in patients classed as chronic are not at all uncommon, and many others of this class, although not entirely recovered, get into a condition to leave the hospital and are able to lead useful and happy lives among their kinsfolk and friends.

For the acute cases our new psychopathic hospitals will undoubtedly do much, for the demented the large wards answer very well, but for the large class between these two extremes I am sure much more can be done than we are doing under present methods. Such cases, unless they present some unusual and interesting features, become lost in the vast wards to which they are assigned, and often I believe, drift into a hopeless dementia from which individualized treatment might have saved them. The majority of the chronic insane are appreciative of physical comforts and to a certain number of patients the days spent in a large ward and the nights passed in a large dormitory are periods of

distress and trial. And the large dining rooms where several hundred patients of all kinds are assembled thrice daily to participate in what has been called "the tragedy of the diet," must surely be depressing to anyone not wholly insensible to the ordinary habits of life. Dr. Conolly, in speaking of huge institutions, with their lack of privacy, says: "I do not know of one good reason that can be advanced in favor of large dormitories for the clean and orderly. Those who sleep in them are generally discontented and no complaint is so constantly on their lips, as that which arises from their not having a single moment to themselves, or any place where they can be quiet, or where they can even say their prayers without interruption." Dr. Bucknill, in referring to Dr. Conolly's views, as above expressed, says that no one who has had charge of a large asylum will be inclined to meet such sentiments with a sneer. If only a small proportion of such cases can be restored to home and friends the effort is worth making from an economic view, and the dictates of humanity require that we do something more than merely house and feed the large number of appreciative chronic insane, who, before their affliction, were, in the majority of cases, wage earners and contributors to the prosperity of the State.

We are all familiar with the two arguments for large institutions, viz.: 1, cheaper care (no one yet has ever had the courage to say better care), and 2, greater completeness of equipment and better opportunities for classification, with increased facilities for diversion and occupation.

The first argument, I think, has been answered by the figures which I have presented, and I believe that I am right in saying that in the opinion of those best qualified to judge, the maximum of efficiency is certainly reached, and probably the maximum of economy also, in institutions of from 1200 to 1500 beds.

In regard to the second argument, I think we must admit that there is no reason why an institution of 1000 or 1500 beds, if properly planned, should not possess every desirable feature in the way of equipment and offer every advantage in the matter of classification, and, after that number is reached, I believe that the facilities for amusement and occupation are merely duplicated rather than diversified.

In opposition to the doubtful arguments in favor of large institutions there are many in favor of the medium-sized hospitals which cannot be controverted. First, as Bucknill says: "It is not the bricks and mortar which cure patients, but the living spirit, as it were, which animates them." Another writer in speaking of the influence of a superintendent has said: "The institution is the portrait of the man." Now who will maintain that any man weighed down with the official duties connected with the management of an institution for three or four thousand patients, and eight or nine hundred employees, can so impress his individuality and influence upon that number, or keep in sufficiently close touch with both medical and lay matters, as to secure the best results? Those who favor large institutions will undoubtedly answer me by saying that where the organization is efficient the results will be satisfactory, and I must admit that with an ideal organization there would be some force to the argument, but with the difficulty which we all have in getting and keeping good assistants a highly efficient organization is not always possible. It, therefore, seems to me that if our institutions are to be enlarged to the gigantic proportions which some have already attained that greater inducements should be offered, and greater efforts be made, to keep the medical service up to a high degree of efficiency.

But if we do succeed in getting an efficient organization what does it mean except that we have several small institutions within one large one? And what does that mean except that the personal influence of the superintendent is lessened with the growth of the institution until his manifold executive duties make it difficult for him to know either the merits or the faults of his employees, while the management and treatment of the patients must be left entirely in other hands.

As Dr. Hollender, in discussing this question, has aptly said: "The driver may be placed too far from the leaders to make the curb felt, so, as the asylum increases in size, the exercise of authority by its head over his subordinates is proportionately diminished." Under such circumstances the authority of the subordinate officers and attendants is greatly increased and the opportunity for abuse of power, and the exercise of petty tyranny over patients, are much greater than they would be in a smaller institution.

It has been suggested that some of the evils of our extremely large hospitals might be lessened by building the necessary additions some distance from the parent institution and continuing them as branches until they become of sufficient size to warrant their organization as a separate institution. In this way the advantages to be gained by purchasing supplies in large quantities would be obtained, the various localities would be more conveniently provided for, and the difficulty of getting sufficient money to establish a new institution would not be encountered. It would also give the assistants placed in charge of these branches an opportunity to develop into good hospital men. This plan was adopted originally by the New York authorities when the colony at Central Islip was established, and also in Toronto when the branch at Mimico was started.

My second objection to very large institutions is the fact that in order to keep them filled the districts must be so large that the hospital is inaccessible to the friends of a majority of the patients. Great distances from points of commitment are objectionable so far as the transportation of the patient is concerned, and it is certainly a great hardship to the friends of the patient when the journey is long and costly.

My third objection is that these large districts make proper care of patients pending commitment very difficult whereas a greater number of smaller and more accessible institutions would do much to solve that problem.

Another matter in this connection which seems to me to be of great importance is the fact that hospitals for the insane, as a general rule, have the confidence of the physicians and residents in their immediate neighborhood, and that the confidence thus built up and disseminated does much to encourage that for which we are all striving, viz., the early treatment and more frequent cure of the insane. In my opinion in no other way can the "hospital idea" be so well cultivated, and the increase in insanity so well combated, as by the erection of a greater number of smaller institutions instead of increasing to unseemly proportions those already existing.

My fourth objection does not relate to the care of the patient but to the up-keep of the institution. From experience I know that a small hospital can be kept in good repair more easily than

a large one. It is difficult, for instance, to get \$10,000 to repair five buildings, whereas \$2000 to repair one could be easily obtained. The same argument applies to the furnishings and all other matters relating to equipment and general management.

My own preference would, therefore, be for an institution of not more than 1000 patients, but as weight must be given to the question of economy in management the limit might be raised, without serious disadvantages to the patient, to 1500. All hospitals should be situated, as recommended in the original propositions of 1850, "within two miles of a large town, and should be easily accessible at all seasons." The cottage system should be adopted and the buildings should be divided into the following groups:

First. A central or administration building, with offices, etc.

Second. A residence for the superintendent, a staff house and a nurses' home.

Third. An amusement hall and chapel.

Fourth. Utility buildings such as bakery, laundry, shops and boiler house.

Fifth. Buildings for the use of patients as follows:

1. A reception building to accommodate about.....	6%
2. A hospital for sick and surgical cases with operating room for about	2%
3. An infirmary for feeble and bed cases for about.....	18%
4. A building for tubercular cases for about.....	4%
5. A building for epileptics for about.....	4%
6. Buildings for the disturbed, restless and noisy for about.....	20%
7. Buildings for workers, laundry, shops, farm, grounds, etc., for about	22%
8. Buildings for the chronic quiet and clean for about.....	22%
9. A building, situated some distance from the others, for convalescents for about	2%
	<hr/>
	100%

The proportion of single rooms to dormitory space should be about 25 per cent.

With such a plant an experienced superintendent could keep in touch with everything, and, with a proper organization, would be able to administer the affairs of the hospital in a way to bring credit to himself, satisfaction to the State authorities, and, above all, health to the curable patients, and some degree of happiness and content to those beyond the hope of cure.

DISCUSSION.

THE PRESIDENT.—I would like very much to call on Dr. Dewing for some remarks on the matter of the size of hospitals.

DR. DEWING.—I have made no preparation whatever to discuss Dr. Pilgrim's paper and I did not hear the paper read. I, however, heard him read a paper under a somewhat similar title some time ago, and I presume he has made similar statements in the paper you heard last evening.

I have been a superintendent in two New York State hospitals for the insane—one at King's Park, L. I., then known as the Long Island State Hospital, and I am at present at the Long Island State Hospital, in Flatbush, Brooklyn.

I went to King's Park when it was the King's County Farm for the Insane, and there were seven hundred patients in it in some very fragile wooden cottages. I saw the institution grow to be a State hospital with some twenty-eight hundred patients. Before I left there I realized that the institution was too large for any superintendent, in my opinion, to obtain the best results, the best medical results, certainly the best humanitarian results, as I believe, and I was going to say, the best economical results; that, however, I think is a matter about which I cannot express a definite opinion at the present time. It is probable that in a very large institution of over three thousand patients, certain results that may be called economical can be obtained. Whether, gentlemen, they are really economical results, or whether the term "economy by deprivation" should be applied to them is a very grave question. I am inclined to think the term "economy by deprivation" could very frequently be applied to these results obtained in very large hospitals for the insane.

I left King's Park some four years ago to go to an institution then containing some twelve hundred patients. Owing to changes, into which it is not necessary for me to enter, the giving up of some buildings to the City of New York, in connection with other changes, the institution is now one of some seven hundred patients, instead of twelve hundred. I find that it is exceedingly difficult to administer the institution in its present size, in a system where the average hospital is much larger, with financial results that are not so different from those of my colleagues in the other State hospitals as to subject me to great criticism. In other words, my per capita rate of maintenance has run up from \$180.00 or \$190.00 per capita per year to some \$243.00. I feel that in the New York State system, it would be very difficult for the superintendent to administer a hospital of only five, or six, or seven hundred patients at the present time, considering the size of the other hospitals, without incurring constant criticism.

I do not think I need go in detail into the sources of such criticism, but it is fair to say that it would originate in Albany from the legislative committees that have to do with the finances of the State hospitals. Comparisons are made there, and I do not believe any superintendent can con-

tinue, as I said before, to administer a hospital of that size in competition with his colleagues, who administer much larger hospitals, and escape very serious criticism.

Now with regard to other matters than economies and finances. I believe that there are great advantages in an institution larger than the one I now administer. I believe that there is greater stimulus to the members of the medical staff in a hospital considerably larger than the one I now administer. The same facts apply to the entertainment and amusement of patients, and other common funds of that sort. These can be made to serve a much greater usefulness in the large hospital than in the small one. But particularly, I think, is the stimulus valuable that is to be had in the larger hospital on the members of the medical staff. It seemed to me that at King's Park the members of the medical staff received much benefit and stimulation on account of the size of the staff, whereas at the present place, where there are only four or five men, it seems to me that we now labor under a distinct disadvantage.

My experience would indicate that there is a happy medium for the size of a State hospital. Just what that medium should be must depend on the situation and the peculiar circumstances of the case. It is impracticable to look at this matter from an ideal standpoint. I believe that after a hospital population has reached 1500 or 2000 any apparent financial saving through an increase in size may very likely be offset or more than offset by losses along other lines which are of very great importance.

DR. HAWKE.—I would like to support most heartily the paper of Dr. Pilgrim. I represent the Philadelphia Hospital for the Insane. We have there about twenty-two hundred patients. Last year we admitted about twelve hundred patients (1137); we discharged six hundred and ninety-six, and had some three hundred deaths. These figures show that we have quite an acute service. We have a small staff. We are under the county care, and not under State control, except under the rules of the Committee on Lunacy of the State Board of Charities. We are endeavoring in Pennsylvania to abolish the county care system, and one argument against Dr. Pilgrim's paper, it seems to me, is that very fact that there is an argument toward the smaller county care institutions which we are trying to abolish in Pennsylvania.

A great many laymen, and I am sorry to say, some physicians in Pennsylvania, feel they would rather support the small county institutions. They favor the county instead of the State institutions, but we are trying to abolish that.

The present plan of Philadelphia is to build an institution for five thousand inmates, purchasing a tract of land of eight hundred and seventy-five acres within the city limits. This was purchased last year. We have in the different institutions at the present time forty-four hundred patients from Philadelphia county instead of having this one large institution. Our hope is to develop the plans so as to erect more State institutions for

the whole State under State control, and to put all of our insane under State control, doing away with the county care act entirely. Under this act the different counties received one dollar and a half per week per patient.

I have visited most of the county institutions, and the lack of medical care in the smaller institutions seems deplorable from the medical standpoint. I have visited many of the small State institutions throughout the country, and I can heartily agree with the last speaker in the fact that the physicians are likely to get into a rut, or get into a position where they do not come in contact with many of the great men of the profession, so as to keep up in the work. I think that can easily be eliminated by having the physicians meet from the different asylums, as we do in Pennsylvania.

A VISIT TO THE PSYCHIATRIC CLINICS AND ASYLUMS OF THE OLD LAND.

By EDWARD RYAN, M. D., KINGSTON, ONT.

Any opportunity of adding to our store of knowledge is welcome indeed, and especially so if it takes the form of a long looked-for break in the round of arduous professional life. But when it takes us away to the old land, and brings us in contact with an older civilization, in close touch with other ideas of life, and within the portals of educational institutions time-honored and revered, then truly it is an event in one's life, of more than ordinary importance.

In Ontario, more particularly for the past few years, educational affairs have been much in the public mind. In this connection the administration of hospitals, especially in university centers, would naturally claim attention. The wisdom or want of wisdom exhibited in the care and treatment of the insane has been openly and freely discussed. By some it was held that the present system, which meant little beyond care and restraint, should cease to exist, and that for acute cases, at all events provision should be made in harmony with modern hospital ideals. So many perplexing problems intrude in a question of this character, that, for their solution, it was thought well to seek light where already hospitals for the insane, or psychiatric hospitals, had passed beyond the experimental stage. Germany has given to the world in recent years a remarkable example of industrial expansion. Technical education has found a field or created one for its own development. But it is perhaps in medical science that Germany has made her greatest advance. To Germany, therefore, we went to see what was being done in the world of psychiatry. Of course it could not be expected that anything like a critical study could be undertaken, in the time at our disposal.

In Germany all roads lead to Berlin, and therefore Berlin was the first objective point. It is a beautiful city, though unfortu-

nately too little time could be given to a study of its architectural beauty, and artistic advantages.

The hospital "La Charite" is the center of university medical life in Berlin. The psychiatric clinic is a department of the hospital in connection with the University of Berlin, and bears the same relation to the University as do the departments of medicine, surgery and obstetrics. The term "clinic" is applied to all those various hospitals. The psychiatric clinic is presided over by Professor Ziehen, who is appointed by the University of Berlin. The clinic is supported entirely by the university funds and by the fees of the patients.

We were very courteously and kindly received by Professor Ziehen, who personally conducted us throughout the institution, entering fully into every detail of administration, of treatment, and also into the methods of scientific investigation. There are two departments, one for the study and the treatment of the insane, and the other for neurotic diseases, organic and functional. Exception has been taken to the method of thus combining these two classes of patients. It does seem, however, that in a clinic where educational and scientific advantages are important, the wide pathological field afforded by the various neuroses ought not to be neglected.

In the psychiatric clinic there are 160 beds, and in the clinic for nervous diseases about 70. The institution is conducted purely on the hospital system. It is well equipped throughout with modern hospital appliances for treatment and research work. There are laboratories for gross and microscopic anatomy, experimental physiology, micro-photography, neurological research, and so on. It is supplied with electro-therapeutic and hydro-therapeutic apparatus, the various forms of hot air baths, sand baths and other therapeutic necessities. Every department, whether clinical or scientific, is under skilled expert directors, aided by a capable staff of assistants. All assistants do clinical as well as laboratory work. The physicians are appointed by the State, on the recommendation of Professor Ziehen, the director. Besides the physicians holding official positions, there are many clinicians, and laboratory workers from the University, and others doing voluntary duty. The patients are kept in bed, carefully nursed

and attended. During the day there is one nurse to every four patients, and one nurse to six patients at night. This number may be increased at any time should necessity demand. For the more disturbed patients single rooms, four in number, are provided, and where required deep padded beds are also used for this class. I cannot say that these beds commended themselves very highly to our judgment. Padded beds, padded rooms and all such, should follow stone walls and iron bars to the limbo of forgotten things.

Small wards, from seven to ten beds, abound throughout, thus affording better opportunity for classification and for clinical purposes. The patients are retained in this institution so long as they are of scientific interest, or respond to treatment, and no longer. The chronic insane patients are then sent to the many asylums in and around the city. The neurotic patients, if chronic, are sent to the institutions for the care of these chronic maladies. Twenty-five hundred patients pass through the clinic in one year.

We visited the asylum at Daldorf, near Berlin. There are 1200 patients in this institution. These patients are received, some from the psychiatric clinic and others direct from the city of Berlin and the towns adjacent thereto. There is a staff of 14 physicians for the 1200 patients. For asylum purposes the staff of attendants is quite ample, in the ratio of one to every five patients. The criminal insane are confined in separate buildings.

We visited the asylum at Buch, which is also situated near the city of Berlin. This institution is built on the cottage system and was erected last year. The buildings are of magnificent architectural design, and occupy a very desirable locality. The buildings number some twenty in all. The interior of every department is well lighted and the space allotted to each patient is particularly commendable. There are 14 physicians on the staff, and one attendant to every four patients. Some distance from the other cottages is situated the building for the insane criminals; they are not allowed to mingle with the other patients in any way; they are, however, kept employed and their life is made tolerably happy. In fact the German method of dealing with the criminal insane, and the insane criminal is worthy of mention. For six weeks they are kept under close observation and subjected to the

most searching examinations. In this way it is quite impossible that deceptions can be carried out, or that mistakes in diagnosis can be made, at all events in either case such an incident would be quite rare. The importance of this method in criminal proceedings must be obvious to all. The unseemly wrangling and contradictory evidence of opposing physicians in criminal trials is entirely wanting in Germany. "Justice is best served by those who can serve justice best."

The patients in this institution are received from the psychiatric clinic, from the city of Berlin, and from the surrounding districts.

Of course the greatest possible interest centered in our visit to Munich. So much had been said and written regarding the famous clinic of Kraepelin, that we were naturally anxious to come within its sphere of influence. Our anticipations were high, yet we were not disappointed. The Munich clinic marks a departure in psychiatry. It is an entire breaking away from our previous point of view with regard to the insane. Here insanity is regarded as a disease, that should come under the earliest possible treatment. This treatment should be carried out in properly equipped hospitals, with an ample and well-trained nursing staff. As a disease it should receive the same clinical and pathological observation and study as are awarded to the other departments of medicine.

Prof. Kraepelin received us at the clinic with the utmost personal consideration, and one of his staff was in constant attendance during our visit.

The building was erected in 1905, by state funds, and is most modern in every respect. The site was given by the city of Munich. The psychiatric clinic is closely associated with the University of Munich, in fact is one of its most important sections.

Prof. Kraepelin is dean of the medical faculty, and his first assistant, Dr. Alzheimer, is assistant dean. The exterior of the building is of modest though pleasing design. The interior is well arranged, fitted and equipped with all the modern accessories for the treatment and study of the various forms of insanity. Conveniences and appliances for hydro-therapy, hot air baths, vapor baths, electro-therapy, abound throughout. On the scientific side the institution is particularly strong. Well-equipped

laboratories for all forms of original research work, as applied to psychiatry, exist. These are under the direction of skilled observers, who have everything required in men and means for their work. Pathology, experimental physiology and anatomy are studied with care and skill.

The drawing and coloring work are under skilled artists.

All forms of mechanical devices for differential diagnosis are installed; these are designed and manufactured by a member of the staff. Some of the apparatus is excellent, some appears ultra-scientific, but all acknowledged to be for experimental purposes. Guinea-pigs, monkeys, rabbits, sheep, are kept alive on the premises, for experimental study and research work. There is a poly-clinic associated, which is under the charge of Prof. Gudden, who is appointed direct by the University. Herein all classes, the insane, neurotic, epileptic, inebriates, are received; here they are studied, classified and allotted. The insane are transferred to the psychiatric clinic, the other classes are sent to "common" hospitals. The patients are retained and treated in the clinic while they are of scientific interest, say from one to three weeks and longer if necessary. If recovery takes place they are discharged. If the cases tend to become chronic, they are sent to the asylums, in the vicinity of the city. A very large percentage of the cases are alcoholic. Beer is King of Bavaria, the state owns the breweries, and of course every loyal subject must drink to the health of the commonwealth. Sometimes "schnapps" are added to the daily collation of beer and then there is trouble and—the clinic. The inebriates are the cases that respond most quickly to treatment, and the clinic has established a special record in this respect both here and in Berlin.

The method of admission is worthy of attention. Voluntary patients are received at the clinic, without certificates. If dangerous to the State the patients may be brought in by friends, by physicians, or they may be committed by the courts. Certificates may be made out by outside physicians, or by members of the staff. In fact there appears to be no regular system of admission, the object being to get the patient to the hospital with the least possible loss of time. The wife or husband of an alcohol or drug inebriate may commit to the clinic the other partner

to the matrimonial contract. All patients must pay a weekly rate of 50 marks, but this is not strictly enforced.

The staff of physicians is very large, some appointed by the State, some voluntary workers, others clinical assistants or house physicians from the universities. All appointments to the staff must be approved by Dr. Kraepelin. The nursing staff is particularly large, one nurse to every two patients, and more are added if required. The common hospital which is under the same management is adjacent to the clinic, and extra nurses can be provided at once should urgency demand. Patients are kept in bed, carefully nursed and attended. The disturbed patients were so nursed and kept under such close observation, that there was a remarkable absence of noise and confusion.

Both here and at Berlin the clinics are situated in a busy part of those busy cities; such is necessary for the convenience of patients, as well as for the educational and scientific end the clinics are intended to meet.

All the men associated with the clinic are particularly able in their various lines. Kraepelin is justly recognized as the foremost alienist of his day. He is also particularly strong in hospital organization and educational management. His first assistant, Dr. Alzheimer, is particularly distinguished as a neuro-pathologist, and occupies that position for the University. Dr. Gudden, of the polyclinic, is appointed by the University and is an exceptionally clever man.

Dr. Plaut has distinguished himself already by his research in syphilis and paresis. Dr. Mooers, a lady physician from America, is a well-known laboratory demonstrator and master of technique. We might also mention Dr. Rien, who does splendid work as assistant clinician. All of those were exceedingly kind to us, and gave us every possible help to study and understand their various methods of work.

We visited the asylum at Eglfing, which is quite near Munich. This is the most modern asylum in Southern Germany, having been erected in 1905. It is built on the cottage system, and comprises a whole village of upwards of 80 buildings. The white walls and red roofs give it a most artistic appearance. One thousand and forty-one patients are confined therein, with accommoda-

tion for 200 more. There are ten physicians in charge. The wards were clean and the patients treated with the utmost consideration, though I must say that we did not see much or any evidence of scientific studies, or investigation.

The cottage system as carried out here, did not seem to meet the approval of those in charge; it was carried too far. The multiplication of buildings increased the work of the staff unnecessarily, and lessened that close supervision on the part of the physician, so essential for the best treatment and administration.

On all sides we were received with the greatest attention; in fact, with unusual consideration. The object of our visit appeared in the public press, and was therefore quite well known even before our arrival.

In Berlin and Munich the psychiatric clinics were brought in the closest possible relation to the universities, for clinical and teaching purposes. Every accommodation and encouragement was given the students in their clinical work. In addition to the laboratories already mentioned, magnificent lecture amphitheatres, capable of holding a large number of students, and equipped with modern conveniences, formed an important element of the clinics. The various psychoses were treated exhaustively by the teachers, and elucidated by means of the patients present.

Criminals are admitted to the clinics for the purpose of observation and study. During our visit demonstrations were given and lectures were delivered on this type of patients, by Profs. Ziehen and Alzheimer, before their respective classes.

Clearly psychiatry receives its fair share of attention in Germany. When one witnesses day after day a large class of students, closely following practical demonstrations by eminent professors, the value of the clinic as an educational factor is well established. The development of the hospital idea, and the "open door" of admission, go far to break down the feelings of dread and shame associated with the word "asylum." Whether it be viewed with regard to the mode of admission, the advanced, skilful, energetic method of treatment, to the scientific and research character of the work performed, or to the great educational advantages accruing to the community, the hospital system possesses surpassing advantages. Situated as these hospitals are, in uni-

versity centers, with the stimulating and energizing atmosphere thus engendered, under the constant stimulus of original investigation and medical advancement they cannot but bring about the best results. At the same time we should have a care that the hospitals for the chronic insane should not be sacrificed, should not be allowed to degenerate into mere custodial institutions. Such a condition would be intolerable in this country, no matter what may obtain abroad. There is need for modern methods in hospitals for the chronic as well as in those for acute cases, need for skilled treatment, careful nursing, for scientific equipment. The necessities of the one need not and should not be sacrificed to the luxuries of the other. A wealth of almost unexplored clinical material is there at hand, and the pathologist must find herein labors rich in results.

Into the student life of Germany we were privileged to have a look. Song and story from "old Heidelberg" down have thrown a charm, a glamor, around the German student days, and hedged them about with customs and traditions, that in other educational centers have long ceased to exist. He has his beer, he has his affairs of the heart; what student has not? But it is another affair one cannot but remark, the "affair of honor," a striking characteristic of German student life.

Loyalty to his university, to his professors, whom he regards with the greatest awe, is a pleasing characteristic of the German student. Nor is anything wanting to perpetuate in the students' minds the fame of the immortals who have passed away. "In storied urn and animated bust," their names and deeds are recorded, while the Virchow hospital and Billroth laboratory, well indicate the love and reverence for the men who have kept the flame alight on the altar of Aesculapius.

At Zurich the asylum is under the direction of Dr. Bleuler. The pathologist, Dr. Jung, was absent on military duty at the time of our visit, and that department was closed "till the war is over." There was nothing especially new in Zurich. The apparatus in use by Dr. Jung, for experimental purposes, was very interesting. In fact the various appliances for work on association word tests, the reading of the emotions, and so on, was quite bewildering. Time alone will tell their value.

And here it may be remarked that in a great many instances the use of mechanical appliances in psychiatry was of admittedly doubtful utility. Their absolute uselessness in many instances was frankly acknowledged, yet even those who worked out the failure were happy; they had been doing something.

From Zurich we directed our steps towards Paris. The heated term, the closing of the medical schools, and I am free to add, a limited vocabulary in the language of France, made progress a little slow. However the visit was not without its interesting and instructive features. As is well known, France has always taken an advanced position in medicine and surgery. Especially is this true in research work, in pathology, bacteriology and chemistry. In the whole field of psychiatry what picture stands out so prominent as that of grand old Pinel, striking the chains from the wretched bodies in the Salpetriere? At the present time it may be asserted, that in psychology France has many noble exponents, while in neuro-pathology no names stand higher than those of Charcot, Raymond and Dejerine.

No recent advance has been made in the realm of psychiatry so far as we could observe. The asylum system is still in vogue. Indeed in one institution of historic renown, we found the insane, neurotic, and the aged indigent, under the one administration. Signs are not wanting, however, that a different spirit will soon prevail.

Claybury, near London, was selected as representing the best English asylum, and as being associated with the research labors of Dr. Mott. It is beautifully situated, and nothing is wanting to the material welfare of its large number of patients.

Dr. Mott was absent at the time, and the pleasure of a meeting was missed. While the pathological labors of Dr. Mott are well known, Claybury is not contributing extensively to the clinical or educational wealth of the nation. The hospital idea was not prominently in evidence.

We spent a pleasant day in Craig House and Morningside, near Edinburgh. No more delightful situation could be selected. The grounds are kept with the traditional care and skill of the "Old Country." Kindness in a marked degree was extended to the patients.

In connection with Morningside are the laboratories of Dr. Ford Robertson, whose work on lumbar puncture, and the diphtheroid bacillus, have brought him renown.

Students from Edinburgh University attend lectures at Morningside, delivered by Ford Robertson and others of the staff. We were much disappointed in not seeing Dr. Robertson, who was absent. A talk on his methods would have been a pleasure.

A pleasant termination to our journey yet remained, in a visit to some of the more advanced asylums of Ireland, at Dublin, Waterford and Clonmell. We were met at each place with true Irish heartiness. Richmond asylum, under Dr. Norman, is certainly well conducted. In one respect it excelled, in art if not in science. By this is meant the industrial arts, for one could scarcely credit the skilled handiwork turned out from Richmond. A splendid pathological laboratory was attached to the hospital, but, from want of proper financial assistance practically no work was being done.

At Clonmell, the foundation was laid for a hospital for consumptives. While in many places the want of such a hospital was urged, this was the first actual step taken.

I am afraid I have already unduly prolonged this paper; and yet it contains merely a skeleton of what one would desire to construct. I only wish I could make the reading of it as interesting to you as the actual experience of the visit was to myself.

ALCOHOLIC PSYCHOSES IN HOSPITALS FOR THE INSANE.

By JAMES M. KENISTON, M. D., MIDDLETOWN, CONN.

With the recent and increasing tendency to extend the frontiers of insanity, very many cases are now committed to hospitals for the insane, which formerly would have never, or seldom, been sent there. Take for example, infection and exhaustion psychoses, simple senile deterioration, imbecility, etc. Thus our hospitals are overcrowded.

Hence an important question which confronts us is: Should all cases of alcoholism be treated in hospitals for the insane? This question has not been finally settled. There is no doubt that many alcoholics develop a psychosis of some kind. Delirium tremens at once occurs to us and is now considered by all but a few physicians as a *mental* disorder, presenting deep clouding of consciousness, numerous and terrifying hallucinations and delusions, great fear, inability to control attention, great psychomotor unrest, besides the tremors, insomnia, anorexia and other physical symptoms. The course is rapid and the prognosis fairly good, at least for first attacks, with prompt and proper treatment. Cases of delirium tremens are being committed to this hospital¹ to a large extent during the past ten years, viz., seventy-five cases, six of whom were females. Cases are also being sent more and more freely to general hospitals, whereas twenty or more years ago they would have been treated at home, in police stations, jails, or, where such existed, in inebriate asylums.

Owing to the extreme fear, restlessness, defensive and protective movements—attempts to escape from the threatening "horrors"—which often lead to assaults on the nurses and physicians, and the almost continuous outcries by night as well as by day, these patients are a very disturbing element, and unless

¹ Connecticut Hospital for Insane. Dr. Henry S. Noble, superintendent, has kindly given permission to use statistics.

proper means of isolation are available will upset the order of an entire ward.

In alcoholic delusional insanity and alcoholic paranoia, we find patients as a rule comparatively free from motor unrest, although brief exacerbations of excitement may occur. In these psychoses the *fundamental* symptoms are the delusions of persecution, infidelity or hostility, with hallucinations, almost invariably aural, while consciousness is clear, the train of thought is fairly relevant, the emotional affect is not in proportion to the delusional formation, and patients can and often will co-operate in treatment, as they have *some* insight as to the *cause* of their trouble.

During the past ten years there have been admitted to this hospital 170 cases of alcoholic delusional insanity, 19 of whom were women. During the same period there were admitted 167 cases of chronic alcoholism, 35 of whom were women. This psychosis, which practically forms the basis on which arise most, if not all, of the other alcoholic psychoses, is characterized by a gradually progressive deterioration, shown chiefly in impaired memory, lack of concentration, incapacity for production, faulty judgment, moral degeneration and blunted emotions. The ultimate dementia in cases which do not recover never reaches the extent and intensity of that characteristic of dementia præcox.

We have had a few cases of alcoholic paresis and Korssakow's psychosis. My object is not, however, to give the complete symptomatology and course of the alcoholic psychoses, but simply to call attention to their *fundamental* symptoms.

Alcoholic psychoses, classified as such, have only within a very few years been reported in the tables of our American hospitals; in fact, some hospitals do not now report them. They have been tabulated under the head of *toxic* insanity, or packed in with the cases of acute and chronic mania or melancholia, according to the predominance of certain psychomotor symptoms and emotional states. To-day, anyone with a fairly long experience, recognizes the fact that the psychoses induced by alcohol present a fairly typical clinical picture, taking into consideration not only the etiology and symptomatology, but the *course*, prognosis and treatment. Alcoholic abuse is associated with *other* causative factors in psychoses other than alcoholic, but for the purposes of this brief paper all such are excluded.

We will now proceed to a statistical study of the number of alcoholic psychoses admitted to the Connecticut Hospital for the Insane since the adoption of the Kraepelin classification, October 1, 1898. Dr. A. R. Diefendorf, in a study of 2000 consecutive cases, found that 238 cases, or 11.90 per cent, were alcoholics.

TABLE I.

	Male.	Female.	Total.
Acute alcoholism	2	0	2
Alcoholic delusional insanity ²	97	12	109
Chronic alcoholism	46	12	58
Delirium tremens	45	9	54
Alcoholic paranoia	10	3	13
Alcoholic paresis	2	0	2
	<hr/> 202	<hr/> 36	<hr/> 238

From October 1, 1898, to September 30, 1907, there were admitted to this hospital 3893 cases, all of which were thoroughly examined, presented before our regular daily staff meetings, and criticized by the entire medical staff. All were carefully reviewed, and no case was tabulated until the diagnosis had been confirmed. The next tables gives the admissions of the alcoholic psychoses for the last nine years.

TABLE II.

	Total admissions.	Total alcoholics.	Per cent of alcoholics to admissions.
1898-9	425	40	9.41+
1899-0	450	52	11.55+
1900-1	424	47	11.08+
1901-2	437	39	8.92+
1902-3	425	56	13.17+
1903-4	459	48	10.45+
1904-5	466	48	10.30
1905-6	413	53	12.59
1906-7	394	57	14.46
	<hr/> 3893	<hr/> 440	<hr/> 11.30+

The percentage of total cases of "toxic insanity" admitted prior to October 1, 1898 (which included a few cases of morphinism),

² Kraepelin now substitutes two forms—acute alcoholic hallucinosis and alcoholic hallucinatory dementia—for this group.

to the total admissions for the same period, viz., 247 cases out of 8446, was 2.92+. While with the more modern resources in the way of examination, and the greater care now taken to procure a full and detailed history of cases, the percentage of alcoholic psychoses would perhaps have been greater prior to 1898, the writer is convinced that during the past decade there has been an actual, and not merely a relative, increase in the number of alcoholics committed to this hospital. This is shown by the following table in the order of classification:

TABLE III.

	1899	1900	1901	1902	1903	1904	1905	1906	1907
Chronic alcoholism	24	17	15	15	16	18	20	16	26
Delirium tremens	10	14	11	3	13	4	8	6	6
Alcoholic delusional insanity...	3	16	18	19	26	25	17	26	20
Alcoholic paranoia	3	5	2	2	1	1	3	4	3
Alcoholic paresis	0	0	1	0	0	0	0	1	1
	—	—	—	—	—	—	—	—	—
	40	52	47	39	56	48	48	53	56=439

I have been unable to study the statistics of American hospitals fully, but have derived some data from a few hospitals in New England. At Danvers, Mass., the total alcoholics admitted in 1903 was 54, and total admissions were 432; in 1904, 100 cases to 754 admissions; and in 1905, 73 cases to 514 admissions. This gives the yearly percentage of alcoholics to total admissions as 12.50 per cent in 1903; 13.26 per cent in 1904; and 14.20 per cent in 1905. Average for three years was 13.35+. At Bridgewater the per cent was 17.89+ for 1903 and 36.55 for 1904. These patients were all from the criminal class, which accounts for the excessively large ratio.

In Vermont, heretofore a prohibition State, we found the per cent to be 8.44, while in 1906 it was only 2.40+. At Westboro in two years (1905-6) there were 96 alcoholics in 874 total admissions—a percentage of 10.98+.

At Medfield the percentage of alcoholic psychoses to total admissions for four years (1902-6) was respectively 8.17+, 9.20+, 12.66 and 13.38+. Average for four years was 10.73+. The average at the Taunton Hospital for three years (1903-6) was 10.80 per cent.

Omitting Vermont and Bridgewater, we find pretty uniform ratios in the others investigated, as shown in Table IV.

TABLE IV.

Danvers	13.35+
Westboro	10.98+
Medfield	10.73+
Taunton	10.80
Middletown	11.30+
Diefendorf (2000 cases).....	11.90

In Italy, out of 1814 patients admitted to the Naples Asylum in 1901-5, 314 were definitely ascertained to be alcoholics—a percentage of 17.30+. Bianchi³ thinks there is perhaps an unconscious effort to make up for deficiency of food by taking alcoholic beverages, or to counteract the mental depression that is produced by the existing intellectual, physical, and social conditions. It is probable that in southern Italy much, not only of the epilepsy, crime, and idiocy that occur in that region, but also of the corpulence, indolence, indifference, rarity of noble impulse, excitability, irascibility, and impulsiveness displayed by the population may be due to the excessive use of wine. He expects better remedial results from education than from legislation, and maintains that the doctor must take the leading part.

In France the large percentage of cases of alcoholism has aroused not only the medical men, but the state. The U. S. consular report quotes the results of a careful and systematic investigation made by Mr. Mirman, director of the Department of Public Assistance and Hygiene, to determine the exact relation in France of alcoholic excess to mental alienation. His report divides the patients in the various public asylums into three groupes: viz., (1) those affected by simple alcoholism; (2) cases of alcoholism complicated more or less with degeneracy or mental debility, and (3) all cases of mania, intermittent insanity, systematic delirium, etc., in which the abuse of alcoholic drinks has been a definite contributing cause.

Group one includes 2287 men and 721 women, a total of 3008. Group two comprises 2237 men and 1048 women, a total of 3285. Group three included 2538 men and 1101 women, a total of 3639. The grand total was 9932. At the same time the whole number of the insane from all causes in French asylums was 71,547. Hence the percentage of alcoholics of all kinds was 13.60.

³ Review Neurology and Psychiatry, February, 1907.

This report also shows the important rôle in the drama of degradation played by absinthe, which has been fitly called "the curse of the youth of France." Four thousand, eight hundred and eighty-two, or nearly one-half of the above 9932 cases, owe their degradation to absinthe or the two or three other so-called "aperitifs" which in France form the customary tippie at cafes and drinking bars. The *serious* element in Mirman's statistics is the revelation of an *increase* during the decade from 1897 to 1907 of 57 per cent in the number of insane in thirty-six departments of France. The national league against the abuse of alcohol is now organized and actively pursuing a crusade against intemperance and the sale of absinthe and other noxious liquors.

While statistics are not available to the writer, it is my impression that the increase of alcoholic psychoses has been noted in many other countries; notably in Russia, England and Germany. In fact, alcohol has become not merely a local or state peril, but a national and even a world plague, the more dangerous because the results of its continued ingestion are often so insidiously manifested. The nations are beginning to notice and act.

In the report of the Connecticut Hospital for Insane for 1906 the trustees say:

Alcoholic patients are committed by the courts, many of them for definite terms. Many of them, after a short period in the hospital, are not insane in the true sense of the word, even if a very liberal interpretation of the term had declared them to be so at the time of the commitment. Still they must be retained until their sentence expires. What disposition to make of these unfortunate people is a very serious question affecting many families and homes.

Not only are hospitals beginning to ask if some special institutions should not be established wherein a large proportion of alcoholics should be treated, and not be required to mingle with the ordinary insane; not only are town and national governments discussing the problem of alcoholism in all its phases—medical, social, economic and therapeutic—but we find the business world also not only studying the question, but taking stringent action to protect its interests from the injuries inflicted on it by alcohol. For a dozen years or more every big railroad system in the country (U. S.) has enforced a rule against drinking by their employees, especially those in the operating departments. More

than one million men are included in this rule. On most of the roads the employe found entering or coming from a saloon while on duty is immediately discharged, unless he can prove that he did not visit the place to take a drink or to loaf. The United States Department of Labor found that 72 per cent of agriculturists, 79 per cent of tradesmen and 90 per cent of railroad officials discriminate against men who drink. So far as I can learn, no hospital, either general or special, in the civilized world, will knowingly keep in its employ any nurse who is known to drink. It seems ironical, but it is true, that no "respectable" saloon will employ a bartender who drinks.

In Great Britain, during the past seven years, there has been a reduction of nearly 14 per cent in the consumption of beer and of over 22 per cent in the consumption of distilled spirits. Sir Victor Horsley states that there has been a marked decrease in the use of alcohol in English hospitals since 1872, and in more recent years in its use in the special treatment of fevers, and his data seem to indicate, so far as they go, a changing medical view of the medicinal value of this agent.⁴

"In many of the great public hospitals of Berlin not a drop of alcohol ever enters the doors, efficient substitutes having been found."⁵ The last German National Socialist Convention voted almost unanimously gainst the use of alcohol during working hours, and inveighed against the pernicious custom of drinking four or five quarts of beer while at work—a procedure long regarded as sacred by many German laboring men.⁶ There is only room for an allusion to the great temperance movement, which starting in South Carolina and sweeping through the entire South, is now reaching out over the entire country. At this date over one-third of the entire population live in communities where the law forbids the sale of alcoholic beverages. In Connecticut a drastic law was enacted by the last legislature, decreasing the number of saloons. While no one (except fanatics) believes that prohibition laws will abolish all drinking, it is evident that the question of how to abate the evils of alcoholism is a vital one—a

⁴ Report British Association for Advancement of Science.

⁵ New York *Herald*.

⁶ *Ibid*.

condition and not a theory—and an educational process is going on which will bring forth some good.

The probation laws in force in many States are helps. In Chicago recently Judge Cleland severely reprimanded a physician because he prescribed brandy for a parole man, and threatened him with a jail sentence if he ever did it again. "This man loses control over himself when in liquor, and as a result of this dose went on a prolonged debauch—the first in many months. . . . It's men like you that overturn the work of a good many friends of a man. You ought to find out all about a man before you advise him to take liquor. This applies to all other physicians as well."⁷

We have shown that to-day there is a very large number of cases of the alcoholic psychoses committed to our hospitals for the insane. As many of these cases tend to become, or are already chronic, the percentage of those present in any year will naturally increase. We have also shown in part that similar conditions prevail in other countries.

It seems to me that if alcoholics are to continue to be committed to these hospitals, there should be some legislative provision whereby every alcoholic, so far as his physical condition will allow, should be *made to work*, not only because occupation is now recognized as one of our most valuable therapeutic resources, but also for the economic gain. Most of this class will not work unless obliged. Further, courts should give long sentences. In my opinion, one year should be the minimum. In cases where patients are committed several times, disfranchisement might act as a deterrent. It would also be well to punish by imprisonment and fine any person selling or giving liquor to any alcoholic who had been an inmate of a hospital for the insane.

On the whole, I am more and more inclined to the opinion that the interests of the individual, the town and the State would be best subserved by creating in each State institutions devoted exclusively to the care of all alcoholic habitues, sane or insane. As this course is now generally recognized as proper for epileptics, most of whom display some mental deterioration, why not for alcoholics?

⁷ Chicago paper.

NEUROPATHIC WARDS IN GENERAL HOSPITALS.

BY CAMPBELL MEYERS, M. D., TORONTO, CANADA.

Mr. President: As functional nervous diseases have of late occupied a prominent place in the advance of medicine, I thought a few remarks on the practical result of their treatment for the past two years in the special department of a general hospital, might be of interest to this Association.

I may first say that I advocated the formation of neuropathic wards in general hospitals primarily, in the belief that a practical means would thus be found for the prevention of the most serious disease which, not only the physician but the State has to contend with, viz., insanity.

I would here state that by the word "insanity," as used in this paper, I would refer only to the *acute* insanities, the psychoneuroses of Kafft-Ebing; and by functional nervous disease; to those forms especially of so called neurasthenia, in which psychological symptoms predominate, or as it might be termed, acute psychasthenia. The chronic insanities, such as dementia præcox, etc., are not included.

With the many other beneficial results, which arise from the treatment of those functional nervous diseases, in a special department of a general hospital, which do not tend immediately towards insanity in their onward course, I will not detain you.

I would like first to direct your attention to the question of the prophylaxis of insanity from a neurological point of view, viz., by beginning at the earliest stage of the development of nervous disease, and proceeding thence to the more advanced stage, when the boundary-line of insanity is reached.

The question of the prevention of insanity has been discussed chiefly by the alienist, who, in spite of every effort to promote this good work, has been greatly handicapped by the existing condition of affairs, since the patient only comes under his care when

actually insane, and in consequence, the patient's state previous to admission must remain more or less a surmise to him. The average general practitioner, under whose care these cases must inevitably first come, has heretofore received an instruction in insanity, and these functional nervous diseases, which has been wholly inadequate in proportion to their importance, and which, when added to the isolated treatment of the insane apart from general hospitals, has unfortunately led to the development of a chasm of considerable dimensions between alienation and general medicine. This chasm will, I trust, be bridged by the neurologist. The study of neurology heretofore has been largely confined to the organic nervous diseases, and the contributions to the elucidation of the problems of this class of disease in recent years by the neurologist has been most gratifying. The functional field, however, with its gates wide open, has admitted but comparatively few workers, and in consequence this fertile field has remained, for the most part, uncultivated.

A preliminary difficulty with which we are confronted in the consideration of these troubles, is their classification, since the nosology of both functional nervous diseases and insanity has been much changed in the past few years.

A discussion as to a line of demarcation between functional nervous disease and insanity is so broad a question as to be entirely beyond the scope of a short paper, and yet some more or less clear conception of what is intended to limit the former is essential. If we attempt to draw a line *pathologically*, it must, in the present state of our knowledge, end in confusion. While all admit that both these forms of disease are due to a lesion in the nervous system, and in many cases a purely functional lesion, yet, to describe an attack of mania as a functional nervous disease, while *pathologically* correct, would certainly lead to much misunderstanding. Hence, much as it is to be desired, that these diseases might be classified on the basis of their pathological anatomy, and further, that the term "functional" as applied to nervous disease should become more restricted, such is at present impossible. We must, therefore, turn to-day to another basis of classification, which, while it presents many imperfections, is for the present the more practical one, viz., the *clinical* basis.

On this basis, the boundary-line forms the line of demarcation between functional nervous disease and insanity. While it is sincerely hoped that this boundary-line will in the future be eliminated, except for medico-legal purposes, and, as I advocated in an earlier paper, that it will no longer form a barrier in the treatment of these diseases as at present, still, for another generation at least, it must exist and will meanwhile serve a useful end. If we regard the boundary-line of insanity as indicating a more or less advanced stage of functional nervous disease, we will, I think, have a practical basis on which to proceed.

I would now desire to direct your attention to a modest beginning which has been made in the Toronto General Hospital, where neuropathic wards were established now nearly two years ago. A building which was semi-detached from the hospital, and had been formerly the residence of the medical superintendent, was kindly offered by the trustees of the hospital, and the Ontario government made a grant sufficient to cover the alterations necessary. By this means, accommodation for twelve beds was provided—six for male and six for female patients. Two floors were thus occupied, and the beds so arranged that four on each floor were in a large ward, while the remaining four (two on each floor) were in separate wards, and were thus utilized for isolation. At first wire screens were placed on the outside of the windows, but later these were found unnecessary and an objection in regard to fire escapes, and they were discarded, the windows being fastened by a simple lock in doubtful cases. On each floor a room was fitted up with hydro-therapeutic apparatus, and these, with a diet kitchen on each floor consumed all the available space in the main part of the building. I may add that the upper story was used as a dormitory for the nurses, and that in the basement a strong room was made for the *temporary* detention of a violent or dangerous patient, until he could be transferred to an asylum, which was done as speedily as possible. On the exterior of the building, two large open balconies were made on the south and east sides, thus allowing provision for plenty of fresh air and sunshine to the patients, who utilize them both in winter and summer with excellent results. While the general conformation of the building and its limited accommodation presented several defects which

could not be overcome; still the broadmindedness of the trustees in offering the building and in establishing a separate department in the hospital, more than compensated for these defects, and I very willingly assumed charge of it at their request.

While the object of these wards was the *treatment* of acute nervous disease, it was soon found that a certain proportion of cases admitted did not belong to this category, and consequently they could only be admitted for observation. After being under observation for a sufficient length of time, to determine the diagnosis, they were, if found insane, at once transferred to an asylum or taken away by friends. These cases were not visibly insane when admitted, but had been referred to these wards simply as "nervous." They comprised such cases as dementia præcox, often in an early stage, and a decision as to their diagnosis, with advice as to the steps to be taken in their treatment, probably averted a crime in at least two of the cases admitted at this early stage. Had these wards for the "nervous" not existed, it is altogether probable that a study of the symptoms would have been delayed until the commission of a crime betrayed insanity. The report of these wards for the past two years shows that 20 per cent of the cases were, after observation, adjudged to be suffering from some form of insanity on admission, and thus not suitable for treatment.

As mentioned above, I will not detain you with a discussion in regard to the other functional nervous diseases admitted to these wards for treatment, such as hysteria, epilepsy, functional paralyses, etc., which did not exhibit any immediate tendency to the development of insanity. On turning, however, to those cases for which these wards were especially established, we find that 67 cases have been admitted to date suffering from acute psychasthenia. There is not included in this number those cases of neurasthenia in which *somatic* symptoms predominate, in which their disease might be termed "somatasthenia." I would, however, here mention the immense field which is open for study in the functional nervous disturbances of the thoracic and abdominal viscera, a field of study in which not medicine alone, but surgery as well, might claim its quota of the benefits.

I will not here enumerate the psychical symptoms of neurasthenia with which you are all so familiar, but I would like par-

ticularly to lay stress upon one fact, viz., that the progressive intensification of these same symptoms leads the patient to a more advanced stage of this same affection, which we then term insanity.

May I now mention a synopsis of the history of a patient who was under treatment last year, and whose symptoms fairly well represent the type of case admitted as acute psychasthenia?

She applied for admission about May 1, but as there was no vacancy, she was obliged to wait. As she was very urgently in need of treatment, I feared she might become insane before a vacancy occurred. She came several times to the hospital while awaiting admission, and on each visit her symptoms were more pronounced, and my anxiety about her mental condition greater. When the vacancy finally occurred on May 18, she was very near to the boundary-line of insanity. The history is as follows:

M. M., female, age 46, admitted May 18, 1907. Discharged August 24, 1907.

Family History.—Father living and well, 87 years of age; not nervous; a farmer, and has always enjoyed the best of health. Mother dead; paralysis; 68 years. Was of a very nervous disposition, as were also five sisters; otherwise negative.

Personal History.—Occupation, housekeeping; no children; no miscarriages. Began to menstruate at about fourteen; always regular, and never suffered very much pain at her periods. As a child, says she was not of a nervous disposition. Never had chorea or other nervous trouble. Says she was quite bright at school, but never applied herself closely to her studies. Always took a great deal of outdoor exercise. Is a farmer's wife. Married at 26. Says she has never worked hard; always has had a comparatively easy time.

Previous Illness.—Had influenza a number of times; otherwise quite healthy till present trouble developed.

Present Illness.—Patient says it began about one year ago, and she attributes it wholly to the fact that her husband was taken seriously ill with paralysis, and patient worried very much, thinking that he would not get better, as he was confined to his bed for about six months. Patient says she became exhausted by worrying and by the work in attending to her husband. The first symptom to make its appearance was weariness. Patient says she felt tired each morning on arising, and even though she rested during the day she still felt tired. Then insomnia developed. She began to worry about any small matter, and felt that she was surrounded by a multitude of troubles which she was unable to overcome. She frequently became depressed, and finally gave up all hopes of getting better.

Patient became irritable, petulant and emotional—any small matter that called for mental exertion caused her temper to give way. She began to feel that she was not capable of performing the duties which she was called upon to perform. She says she misconstrued remarks made by others, and felt that she was being made fun of when she heard anyone laughing or talking. Complains of a feeling of constriction about the head. Complains that she is indifferent and lacks interest in anything she is doing; cannot concentrate her thoughts, and she is never surprised at anything, no matter how unexpected it may be. She takes everything as a matter of course—has become listless. Feels restless and has a desire to be on the move. Cannot content herself with being quiet, and feels the want of some outlet for her feelings. She has often felt that she is a burden to herself and her people, and that she would sooner be dead.

Physical Examination.—Negative.

The ward notes, after recording various ups and downs, read as follows on July 27:

Has slept very well during the last week, with exception of the last two nights. She is brighter and looks better than she did a week ago. Has gained $3\frac{3}{4}$ pounds this week.

August 2. Patient doing well. Gained $2\frac{1}{4}$ pounds this week.

August 8. Patient eats and sleeps well, and is very cheerful.

August 14. Patient cheerful and sleeping well. Gain in weight equals $2\frac{1}{2}$ pounds last week.

August 24. Patient sleeps well, eats well and is bright. Wants to go home to her husband. Discharged. "Recovered." Duration of treatment, 3 months and 6 days.

This patient was doing her household work and nursing her husband, who was still partially paralyzed, when last heard from two months after leaving hospital.

In regard to this history, I may say that while it is at all times difficult to express on paper the degree of intensity of any feelings, I think sufficient has been written to show that a progressive intensification of the symptoms occurred from the beginning, when there was simply undue weariness with loss of sleep and increased emotivity, up to the date of her admission, when her listlessness and depression became so marked that she gave up all hope of getting better, and felt she would sooner be dead. She was then evidently on the border-land, and any further intensification of her symptoms would have resulted, either in self-destruction or an attack of insanity.

Of the results of treatment in the 67 cases above mentioned, 22 were discharged recovered; 36 improved, and 9 were unimproved by treatment and became insane. Hence, in 85 per cent of these

cases admitted, the immediate danger of insanity was averted, a result which can, without difficulty, be reduplicated under similar circumstances in any general hospital when the cases come under treatment sufficiently early. No accident has occurred since the inception of these wards; there is no red tape in regard to admission; no difficulty in regard to detention, and finally, no stigma from being treated with the insane, which the laity so much dread. Again, and perhaps most important of all, clinical instruction has been given in these wards during the past winter. The house staff, the students and the nurses have all referred in warm terms to the value of their experience from the observation and study of these cases.

There now remains one other point to which I would like to direct your attention, and this is in regard to a suggestion which has been made to treat these cases in a psychiatric hospital. The attempt to do this would, I firmly believe, be a grievous mistake. Every alienist is well aware of the difficulty in getting the acute cases of insanity under treatment at an early date, owing to the prejudice of friends to have a near relative treated among the insane. How much greater then would be the prejudice when the patient was as yet suffering from nervous disease only! Practical experience has demonstrated in the wards of the Toronto general hospital that the presence for a short time only of a patient visibly insane has so disturbed the other patients in the same ward that the ill effects were felt for days, even after the removal of the patient from the building. Again, the influence of suggestion, induced by the presence of the insane in the same building, is most harmful, in view of the importance of psychic treatment of these cases, many of whom fear they will themselves become insane, and this fear would thus be kept constantly before them. If further practical results are desired, I may mention the last report of that most excellent department of the Albany Hospital, Pavilion F. The fifth report of this pavilion shows that only 2 per cent of the total cases admitted suffered from neurasthenia. Any attempt, therefore, to treat functional nervous disease in the same department of a hospital as the insane, will, I am assured, result practically in failure, and the nervous patients will return to the general medical wards of the hospital as of yore.

In conclusion, I may state that as a result of more than fifteen years of experience, devoted exclusively to the study (under exceptionally favorable conditions) of diseases of the nervous system, and of which these functional cases formed a large quota, I am convinced that for the true prophylaxis of acute insanity we must look to the general hospital, and that this result will be best accomplished here by the formation of neuropathic wards, especially equipped for the purpose.

IMBECILE, CRIMINAL, OR BOTH?

By CHARLES W. HITCHCOCK, A. M., M. D., DETROIT, MICH.

The shameless exhibition of insanity successfully pushed as a defense of the crime of murder, followed by the indignant efforts of the accused to be adjudged sane so soon as his insanity plea had served its purpose, may well make the alienist at least cautiously critical of such a line of defense. That there are points, however, where penology and psychiatry are tangent, can hardly be gainsaid. Our social organization is still defective and certain classes are not yet clearly recognized, and so, of course, not provided for. But, it seems to me, our duty lies in the direction of considering these cases from the standpoint of our defective social scheme. It were indeed convenient if the "demi-fous" and "demi-responsables" could be assigned to their proper institutions, when recognized. Whether the habitual criminal be such a one may be another story.

The writer was called by his anxious sisters, who wished him declared insane because facing a criminal charge, to examine one, S. C., æt. 22, who never had any occupation, save, as the police say, he has always been a "cheap thief." He is an inveterate smoker of cigarettes; he is about 5 feet 6 inches in height and weighs about 145 pounds, thin-lipped and of shiftily looks. His sisters say that his mother was a (left) hemiplegic (and hysterical) for five years before his birth. His family history is otherwise negative. He was an ordinarily healthy baby, and later attended the public school, to the third grade, when he ran away. That his police record began at tender years is evidenced by the following, showing no less than 41 arrests between the ages of 5 and 22 for charges from simple larceny to robbery:

POLICE RECORD OF S. C.

Jan. 10, 1901	.... Simple larceny	Released to appear.
May 15, 1902	.... " " .....	Discharged.
" 20, "	.... Drunk	S. S.
June 2, "	.... Simple larceny	Complainant refused to prosecute.
" 11, "	.... Drunk	\$5 or 30 days.
" 18, "	.... Simple larceny	\$10 or 30 days.
July 7, "	.... " " .....	Complainant refused to prosecute.
Oct. 2, "	.... Suspicion	Discharged.
Nov. 1, " "	"
" 4, " "	"
" 14, "	.... Suspicion of breaking and entering a dwelling-house.	{ Complainant refused to prosecute.
Feb. 13, 1903	.... Simple larceny	
Mar. 18, "	.... Disorderly person	\$15 or 6 months.
Apr. 3, "	.... Drunk	Discharged.
July 16, "	.... Suspicion	"
Nov. 14, "	.... Vagrancy	\$5 or 30 days.
June 9, 1904	.... Suspicion of larceny	Discharged.
" 27, "	.... Disorderly conduct	\$3 or 6 months.
July 12, "	.... Drunk	\$10 or 30 days.
" 21, "	.... Resisting an officer	Discharged.
Nov. 1, "	.... Disturbing the peace	\$15 or 6 months.
Jan. 6, 1905	.... Suspicion	Discharged.
" 22, "	.... Simple larceny	\$50 or 90 days.
Apr. 8, "	.... Suspicion	Discharged.
July 26, " "	"
Aug. 11, "	.... Drunk	\$5 or 30 days.
" 19, "	.... Suspicion of larceny	Discharged.
" 23, " " " " "	"
Sept. 13, "	.... Suspicion	"
Nov. 3, " "	"
" 4, "	.... Drunk	"
" 21, "	.... Suspicion	"
Dec. 6, " "	"
" 13, "	.... Simple larceny	\$25 or 90 days.
" 28, "	.... Suspicion	Discharged.
" 29, " "	"
Jan. 12, 1906	.... Robbery	1 year Jackson Prison.
May 10, 1907	.... Drunk	Discharged.
June 12, "	.... Suspicion of larceny	90 Days in House of Cor.
July 4, "	.... Larceny	
Oct. 17, "	.... Larceny from person	

It is to be noted that at the mature age of 5 years he was charged with simple larceny, and when he had attained the dignity of 6 years he was convicted of being drunk and sentenced therefor. During the second year of his criminal career he was arrested no less than 10 times; the next two years, 5 times each; the following year, 15 times; in 1906, once; and in 1907, 4 times.

When convicted and serving sentences in prison he has been an orderly, well-behaved prisoner, attracting no especial attention. In jail awaiting trial and without any work to do, he has been inclined to domineer over younger prisoners, impose on new comers, and ready to pick quarrels with those of inferior strength. He was several times examined in jail. He has a light, shifty eye, never looks you full in the face, and has a look and air of utter indifference.

His latest offense is the larceny (of a watch) from the person, and he steadfastly denies any knowledge of stealing it; says he doesn't know whether he took it or not. He maintains that he has no reason for his theft, that his sister has supported him, and that he has been perfectly willing that she should. He admits his frequent thefts, but denies that there is any reason therefor. His head is not ill-shapen, though his palate is a trifle high—arched and rather narrow. Physical examination of negative interest. His pupils were equal, normal, quickly responsive. His knee-jerks were plus. His hands are not moist. He seems quite indifferent to his crimes and to his surroundings; says he has had thoughts of reform, but that they seem weakly, poorly-formed thoughts. Asked if he would not, if discharged, continue the same criminal acts, he replies that he does not know. He denies being in any way ill; says he feels perfectly well. Now under sentence of five years to a prison for confirmed criminals, he says he doesn't want to go there "because they lick you there." He has no ambition whatever to learn any trade or follow any useful occupation, although there seems no mental or physical reason why he should not. He once obtained a position as a messenger, but lost it, because, he says, he put his hand in a man's pocket. He says he can resist the temptation to steal; that he doesn't have to steal. He seems to have no objection to terms in jail or prison; says, "It's all right."

He has, from early boyhood, given himself up to the gratification of every passing impulse; has lied, stolen, been drunk, made assaults, has had gonorrhœa and syphilis, and as soon as released after serving a sentence, seeks his old associates and gets again into trouble. Every time that he is seen he has the same slouchy look and shifty eye.

His sisters, who are anxious to have him declared insane as a possible solution of their troubles with him, aver that he at times rocks violently back and forth at home, attempting to sing, though he is not musical; that he once got up at night and went about the house thinking that people were after him and that, the last time he was at home, he went about the house with his shirt outside his trousers; that he whistles and talks to himself; that some of his thefts have been without any apparent object and so open as to suggest mental defect. On one occasion he is said to have arrayed himself in his brother-in-law's clothes and to have "prinked" before a glass. It is also said that he is a masturbator. He once stole a bundle of newspapers and went out on the street crying, "All about the mayor's suicide," in order to sell them.

These are the things that are alleged as evidence of mental impairment. It does seem to be the fact that some of his thefts have been clumsy and rather open, thefts by which he could profit little or none at all. He associates with thieves and seems to have a fondness for almost any kind of a theft.

The deputies on watch in the jail have been able to discover nothing in his conduct which seems to them to savor of the abnormal. He is vile in his language and overbearing to younger prisoners. He says he uses all the cocain he can get, snuffs it into his nose, likes the after-sensation. He does not care for reading, but writes his name and that of his sister in a plain hand. Sensation seems normal; no anæsthesia nor analgesia. The mental reflex seems not abnormally slow. He can understand when he wishes and can respond quickly enough when it suits him. Memory is not deficient.

In short, here is a man who from earliest years has given himself up to the indulgence of every passing impulse. His early associations were bad and have been continued. His impulses,

from association, are largely criminal and have been consistently followed. There hardly seems to the writer here sufficient evidence of mental impairment to brand him as insane. That he is morally defective is readily granted, but the defect seems to be the legitimate outcome of persistently indulged immoral impulses. It should hardly entitle him to be classed in the great army of the defectives, who have rightful claim to some public sympathy and provision.

Yet one of those who saw him pronounced him a high-grade imbecile; and on the strength of this opinion, although Michigan asylums are not supposed to receive idiots or imbeciles, he was committed to the Asylum for Insane Criminals, whence after a short sojourn he will probably be discharged to do it all over again.

Confined in a penal institution, he is a quiet, orderly prisoner, doing his work reasonably, making himself of service, while society is protected from his criminal instincts; and with this disposition of the case no sense of fitness seems violated, while he does seem an unfit companion for those who are the unfortunate subjects of undoubted psychoses.

Perhaps, the child of a hemiplegic mother, his heredity is a lessened moral resistance. Muensterberg has well said: "Criminals are recruited especially from the mentally inferior; that is the only true core of the doctrine of the born criminal. But the mental inferiority, intellectual or emotional or volitional, forces no one to steal and burglarize. He cannot and never will equal the clever, well-balanced, energetic fellow; but society may find a modest place, humble but safe, for even the most stupid and most indifferent and most unenergetic; no one is predestined by his brain to the penitentiary." It does not seem to me that the social equation here was devoid of powers of inhibition, nor that we are forced into a diagnosis of imbecility as its only solution. If this be one of the unfortunate class demanding treatment apart from the common criminal, it would seem that the rightful place for this class will not be found until our social scheme provides institutions to which the demi-insane and demi-responsible (of Grasset), *i. e.*, those of lessened responsibility, may be sent. The habitual criminal, however, is evolved, undoubtedly, from the creatures who fail to resist the downward impulses, which more or

less beset all. With each new giving away, the criminal impulses are stronger until eventually they are, as here, the ruling passion and their subject becomes the habitual criminal. To be sure, it may be argued that the habitual criminal is a phenomenon not found in the ranks of the normal, and that moral sense is so obviously defective as to entitle the habitual criminal to a certain amount of sympathy because of his lack of responsibility. Where, however, as in the majority of cases, the moral defect seems to be an acquirement of almost deliberate choice, where the will has been simply to follow the direction of impulse, it may be well to guard ourselves lest we fall easily into a mawkish sentimentality which makes a poor unfortunate out of the individual who, although he may have started with bad environment and a poor heredity, has been content, as in the case cited, to drift with the tide and resist no downward impulse.

This man seems to the writer to belong to the criminal class and not to be entitled to that preferment which he receives when classed as an imbecile. But the question may perhaps fairly be asked: Is he imbecile, criminal, or both?

P. S.—Under date of July 22, 1908, the superintendent of the State Asylum wrote that he did not, after careful observation, consider this case as a high-grade imbecile, but rather as a "psychopathic personality." His observation showed the man "intensely selfish, cunning, deceitful, egotistical, cowardly." He had "organized an attempt at escape that came near being successful, and included hardened criminals serving long sentences. The frustration of their plans affected him the least of any engaged in it." Observation led to the conclusion that he was improperly confined in an asylum and that he belonged in prison. In September, 1908, he was discharged as "cured" and returned to the authorities of Wayne County. Here in jail he talked in abusive terms of the asylum, and on trial for larceny was discharged (October 15).

Some other misdemeanor will doubtless again soon bring him before the courts, when he should, for his own good and that of the community, be committed to prison for a maximum time.

December, 1908, sees him again under arrest.

DISCUSSION.

DR. FRANK P. NORBURY.—Some years ago, Dr. I. N. Kerlin, then superintendent of the Pennsylvania Institution for Feeble-Minded Children, in his classification of the feeble-in-mind, gave us the moral imbecile as a distinct type, to include that form of defect embracing a total inadequacy of the moral sense, and from my personal knowledge of such individuals, gained while serving as resident physician under Dr. Kerlin, I would classify Dr. Hitchcock's case as a moral imbecile.

Dr. Kerlin, in his original paper, with which no doubt many of you are familiar and which may be found in the literature of imbecility, strenuously insisted upon this type as genuine and worthy of the consideration of physicians, judges and all who had to deal with delinquents.

It was my privilege to study and have under my care two such patients while associated with Dr. Kerlin in his work; one of whom had a career not unlike the case just described by Dr. Hitchcock. Dr. Kerlin had to contend with varying opinions as to whether the moral imbecile was entitled to classification. He held that there was a moral imbecility, characterized by original defect, without necessarily profound intellectual impairment, and yet with moral sense absent. That such a condition exists was demonstrated, clinically, in a boy, one of the cases to which I refer, who had rather extraordinary intellectual abilities, but who did not recognize moral rights or sequences. He was constantly infringing upon the rules of the institution; he would steal; he would lie; he would show evidences of cruel malicious tendencies in torturing other children, and in every way demonstrated the truths of Dr. Kerlin's contention that the moral imbecile demands recognition, protection and segregation. We should give all such cases thorough study and give them the benefit of the doubt when we suggest to the court custodial care, rather than liberty to prey upon society and to be a charge to their friends and relatives.

Again, girls of the moral delinquent type are offenders against society, innocently, and are subjects of unjust discrimination, not infrequently, as I know from observation of one in particular, of good family, with an unfortunate heredity, who committed many indiscretions through lack of moral comprehension; and yet, intellectually, she had many brilliant qualifications.

Dr. Kerlin's life work was crowned by his study of the moral imbecile, from the clinical standpoint, to say nothing of his pioneer recognition of social demands for the institutional sequestration and educational needs of the feeble-in-mind.

DR. MEYER.—The great difficulty of this problem seems to me to come from the fact that our law is in part retaliative and only in part corrective, and that part of this retaliative function, especially where capital punishment is involved, is apt to appeal to the emotional side of the mind, rather than to the judgment, and it is natural enough in that field, because we

have normal instincts that put us up against the idea of our right to deprive any individual of his life, unless there has been adequate reason, and for many of us that reason never exists. Consequently there is always that evil—the ease in finding a justification for the verdict “not guilty on account of insanity”—where we have any doubts. In the cases of Drs. Hitchcock and Norbury that sort of question probably would not have come. I think there we are very much more clearly confronted with the protection of the community, and there I think a great deal could be gained if lawyers and judges would realize that it is not only the question of guilt that the physician ought to be asked about, but especially also the question whether an individual is a fit person for a certain form of institution of corrective character that we have.

I think as soon as an individual is not likely to suffer from our corrective institutions, we ought to rather give that individual and society the benefit of a stay at that corrective institution than work for the condonement of crime, and mix him up with the insane, if we can possibly do so.

There are, I think, among the cases that have given the greatest amount of discussion quite a few in which the question, would the individual be damaged by the penitentiary or the workhouse, would be a very much saner question than that of, should he be considered irresponsible? That question of irresponsibility is usually put to answer the question of the retaliative feature of our criminal practice; but we ought to balance the consequences by asking for its weight on the corrective feature.

DR. WHITE.—I think that the legal attitude toward the criminal is just as retaliative now as formerly. As Dr. Meyer has suggested, practically the whole scheme of the criminal law is retaliative, and society deals with the disagreeable problem of the criminal by saying, we will shut him up somewhere and forget him as soon as possible.

To my mind the direction in which reform ought to take place is toward dealing with the criminal in each instance as an individual. I always have believed that to put to the jury the question of insanity or sanity, or mental condition, or whatnot, is absolutely absurd. I think their function is simply to determine the fact that a crime has been committed by the defendant. Then I think the individual should be submitted to such observation as would determine what manner of man he is, and then he could be dealt with in accordance with his make-up, and sent to such institution as the State provides, that will best meet the condition of his individual make-up, with the best possibility of restoring him, if he can be restored, and keeping him, if he cannot be, from further depredations on society. I do not believe until we get such an attitude of dealing with these people as individuals that we will have accomplished a great deal.

Much has been said recently; a great deal of criticism has been directed against the medical expert. The whole trouble is not with the medical expert, but it is largely with the legal methods, the legal procedures, into which the medical expert has to fit. As long as those methods are as they

are now, we are going to have defective results in our dealing with these cases.

DR. HILL.—The difficulty of dealing with these cases is more in respect to law than to our knowledge of the patient's condition, moral and physical. It has constantly come up in practice. We go before the criminal court to testify in cases of this kind, and the lawyers scout the idea of the moral imbecile—one morally defective, yet intellectually bright and physically fairly well developed—and they have ruled out the matter of moral insanity altogether.

I remember a very interesting case in a young man who went into the army service at the beginning of the war. He was a highly talented young man, character very good, honest and of high standing in the community. He served faithfully as an officer for a while, until he had a slight wound from a spent bullet striking him in the head. Gradually his character changed; he became such a source of annoyance, and on account of insubordination, he was reduced to the ranks and finally expelled from the service. He found his way into a soldiers' home, where his immoral escapades were such that he could not be tolerated there. He was finally sent to an asylum for the insane. The superintendent of the soldiers' home, in writing to the physician who had him in charge at the asylum, said he did not know what diagnosis to make except that this man was "possessed of the devil."

In the course of time the poor fellow died. Post-mortem was made, and when they were sawing off the skull to get at the brain, the saw encountered some unusual resistance, and upon opening the skull they found this apparently spent bullet was a minie ball. It had pierced his skull and entered in until it was flush with the outer surface. The physician wrote back to the officer of the institution and told him he had finally solved the question, and made a diagnosis in his friend's case. He was not "possessed of the devil," but really possessed of a bullet, which he enclosed in the letter.

DR. BANCROFT.—I merely wish to say I believe this a very important subject, and one that is constantly demanding increasing attention from our specialty. For purposes of classification, we must place these individuals somewhere. I personally like Dr. Fernald's classification, as mentioned in his paper, "The Imbecile with Criminal Instincts." I am very sorry he could not have been here to deliver it. His paper is extremely suggestive. The number of the cases he cites as confirming his opinion is very convincing.

Every once in a while one of these bad men, as they style them in the Far West, turns up, and we have got to determine his status mentally and socially. They are a constant danger and menace to society, unless we have a very complete criminal law and a penal system by which the indeterminate sentence is recognized, and imprisonment for life or for a long term

of years enforced. When a man, after a sufficient number of depredations on society, has shown that he cannot restrain his passions, he may well be regarded as in a measure irresponsible. Unless we have indeterminate sentences enforced, I do not see how society can protect itself from these individuals, unless they are committed to some institution like a school for feeble-minded in the custodial department, if such a department exists, and kept there for years—for life in fact.

These individuals are all impulsive, have strong passions, weak will-power, and seem unable to control themselves. I think these are the very class in which the observation law works to the best advantage. Such a person cannot be decided upon hastily. No expert, however experienced he may be, can examine such an individual in a jail on one or two interviews casually made, with the inconvenient situation which often obtains in the jail, and satisfactorily pronounce an important opinion. They need careful study and observation, even by the best of us, and for that reason I believe strongly in the existence of an observation law in every State in this country so that these doubtful cases can be sent by the court to the hospital, and there be placed under proper facilities for observation.

DR. HITCHCOCK.—The relatives of this man desired my assistance in having him committed as insane. I could not find that he corresponded to any form of psychosis, nor gave any opinion that tended to establish his insanity. However, we relegated him to the companionship of the morally defective who may of course acquire some legitimate psychosis.

No injustice would have been done this man by confinement in a penal institution. I regret that he was sent to the criminal asylum. It has been well said that anything that provides occupation works well in cases of this kind. That is what should be provided for such cases. The solution of this class of cases is not satisfactory, so far, from the social standpoint.

TRAUMATIC AMNESIA—A CASE OF MEDICO-LEGAL INTEREST.

BY W. W. RICHARDSON, M. D., NORRISTOWN, PA.

The case of Frank Endrukat, who was tried for murder in the Philadelphia courts in December, 1907, is believed to be unique from a medico-legal standpoint, and is for that reason reported to this Association.

The following is the patient's story as he tells it at the present time. It is practically the same as told many times previously to others.

Frank Endrukat was born in Germany of healthy parents. He knows of no mental nor nervous taint in his ancestors. He is the seventh child of a family of seven, none of whom showed abnormalities or nervous disease. When he was two years old the family moved to Russia, where he was reared.

Endrukat and the girl, Martha Corias, whom he murdered, were school-mates in Russia and early became attached to each other. Upon reaching manhood he became a newspaper correspondent. He states that at times he and the girl traveled together, registering at the hotels as man and wife, but that at this period there was nothing improper in their relations.

When the girl was eighteen years old, they decided to marry, but the father of the girl repeatedly refused his consent on the ground of religious differences.

On the morning of May 16, 1905, he went to the girl's house to renew his suit. Before he saw the father, the girl avowed her intention to kill herself if the father refused his consent. The father did refuse and, when Endrukat returned to the girl with this news, she turned pale and he heard her say, "This is the murderer's moment." He thought from this remark that she was going to kill herself, and, as he was wearing his military pistol (being in the Russian Army at that time), he drew it and shot her twice. The father rushed in with a hatchet at the shots. Endru-

kat shot him, wrenched the hatchet from his hand, struck the girl several times over the head and then shot himself in the neck. (In corroboration of this part of the story it may be said that he carries a large scar at this point.)

The girl recovered, but the father died four days later. After lying in the hospital ten months, Endrukat was tried and sentenced to two and one-half years imprisonment. His sentence, however, was lightened by the Douma and, further, he was one of the prisoners freed to celebrate the birth of an heir to the Czar, so that he actually served only eleven days in prison.

Shortly after the girl recovered she sailed for America. He heard of this and in December, 1906, also came to the United States, though not, he claims, with any idea of finding the girl.

He landed at Baltimore, came to Philadelphia and learned, quite by chance and with surprise, that the girl was in the city, knew of his arrival and wished to see him. They met and became very intimate; in fact spent several nights together. One such night was spent in his room, and on this occasion he showed the girl a large sum of money (\$800) which he had.

After she left, he found that his money was missing and later accused her of the theft. She gave him an evasive answer and, as he had heard that she intended to leave the city with his money and another man, he had her arrested on a charge of larceny. She retaliated by lodging a charge of rape against him, claiming that she had been detained against her will at his room and, through threats of death, had been dishonored. They later met in court, an exchange of money took place, each charge was withdrawn and they separated. This occurred on April 24, 1907, and Endrukat claims that he never saw the girl after that date.

He states that on the date of the murder, April 29, he rose about 9 a. m., breakfasted, remained about the house until 2 o'clock p. m., took the street car for the Pennsylvania Hospital to be treated for rheumatism, was admitted and put to bed. After he had been there three days he was restrained mechanically. Upon inquiring the reason for this he was told that he was insane. In addition, police officers were kept near him day and night. On May 28 (one month after the homicide) a woman acquaintance visited him, told him of the murder of Martha Corias; that he

had killed her and shot himself. This, he claims, was the first he knew of the death of the girl.

The actual facts in regard to the homicide, as developed at the trial are these:

At about half-past seven o'clock on the morning of the 29th of April Martha Corias was in a bakery, buying bread. As she started to leave, Endrukat entered and addressed her in German. She said, "let me go," and upon this he drew his revolver, shot her twice, then shot himself in the right temple.

The girl died almost immediately and he became unconscious at once.

The testimony of the physicians as to his history while at the Pennsylvania Hospital is briefly as follows:

Patient was brought in, unconscious, at 8 a. m. A bullet wound was evident in the right temporal region. This wound was enlarged under ether about 11 a. m. and was found to penetrate the temporal bone just back of the orbit, the bone being depressed and somewhat comminuted at this point. Brain substance exuded from the opening in the skull. As moderate probing failed to locate the bullet, the wound was closed with gauze drain.

The patient regained consciousness about 8 p. m. (12 hours after the shooting) and was able to recognize a friend who called. Nothing coherent, however, could be learned from him at this time. In answer to a question as to the shooting of the girl he gave a somewhat confused reply to the effect that he had not killed her.

For about two weeks he lay in a semi-conscious condition with intervals of more complete consciousness. During this period he at times was critically ill. Soon, however, he began to gain; his wound healed rapidly and his only complaint three weeks after the injury was double vision.

About this time a skiagraph was taken, disclosing a bullet in the left temporal region. (Unfortunately, the plate has been lost and I could get no more definite information than this.)

He refused permission for an operation to remove the bullet, refusing to believe that the skiagraph shown to him was taken from his own head. His conduct while in the hospital revealed no abnormal features. His answers to questions, especially when

relating to the crime, were irrelevant or evasive, though not incoherent.

When told by the woman visitor, one month after the homicide, of what he had done, he denied all knowledge of the matter and volunteered that the police officers who were watching him were there because he was thought to be crazy.

After his refusal to have a further operation he was soon (June 7, 1907) sent to prison, being convalescent.

Endrukat remained in prison six months awaiting trial. During this period he was repeatedly questioned by his attorneys and by medical experts in an effort to make him admit some memory of his crime. To all he said emphatically that he did not kill Martha Corias; that he couldn't have killed her, as he was in another part of the city on the day of the murder, as he could prove by his friends. When questioned about the bullet wound in his temple he said he had had a cancer, which was cut out at the hospital. He laughed about the bullet in his brain and said that a man couldn't live with a bullet in his head.

His conduct while in prison is stated to have been natural in most respects, though he manifested irritability at times, especially if other prisoners were noisy. The prison physician testified that there was nothing in his conduct or speech while in prison to make him think that the prisoner was of unsound mind.

At the opening of the trial (December 12, 1907) the court considered a petition from the defendant's attorneys asking that an inquiry be first made into the state of mind of the prisoner, it being averred that Endrukat had no recollection of his crime and for that reason could not comprehend the proceedings, could not properly confer with counsel nor make a rational and proper defense. However, the defendant, in answer to the court's questions, stated that he knew he was in a court-room and that he knew he was charged with killing Martha Corias. The court then overruled the petition of the defense, directed that a plea of "not guilty" be entered for the defendant, and the trial proceeded.

There was no contention in regard to the facts of the killing, as detailed above, which were proven by the commonwealth.

For the defense, several witnesses were first called who had been associated with the defendant at the hospital and prison, to

confirm the contention that the prisoner had never at any time admitted any knowledge of his deed. An attorney who had formerly been connected with the case testified that the prisoner had told him of having several thousand dollars at his disposal, which money was at the house of a friend. However, this friend could not be found at the address given.

The main reliance of the defense was upon expert testimony. The first expert called for the defense testified that in his opinion the defendant was suffering from traumatic amnesia, covering the period of the commission of the crime as a result of the gunshot wound. The following question was asked him by the counsel for the defense:

"Assuming that lunacy, as used in Section 67 of the Act of 1860 (Statutes of Pa.) is defined to be the inability of the prisoner to understand and comprehend sufficiently his position to be able to confer with counsel and prepare a defense; assuming that and assuming that the prisoner has traumatic amnesia, would you consider that that person is a lunatic within the meaning of the word as I have defined it in this question?"

The answer was: "In my opinion he would be." He further testified that, outside of his traumatic amnesia, he saw no evidence of mental abnormality in the defendant.

On cross-examination, he stated that the fact that the prisoner refused to accept the testimony of creditable witnesses that he had committed the crime served to differentiate this case from one of simple alcoholic amnesia and suggested more impairment of mind than mere traumatic amnesia. He felt that the defendant did not realize the gravity of the proceedings or comprehend fully the situation in which he was placed. He thought that, having no knowledge of his crime, the prisoner was not competent to conduct his defense.

The other alienist for the defense was also asked the hypothetical question embodying the definition of lunacy as given above and answered that he regarded the defendant as a lunatic "in that broad meaning." He thought the defendant comprehended his surroundings and the proceedings as far as a foreigner could and that he could reason properly about all matters save the crime itself, of which he remembered nothing. He also thought that

a man could not confer with counsel and prepare a defense for a crime about which he knew nothing.

Two experts were called in rebuttal by the commonwealth.

The first witness testified that, from his examinations of the prisoner, it was his impression that the loss of memory was real, though he knew of no way to prove it. There was one point, however, in which, if real, this amnesia differed from most cases of a traumatic character and that was in the fact that the prisoner had fabricated a series of events to fill in the lapse of memory (or part of it).

He qualified his answer to the hypothetical question of the defense, defining lunacy as the inability to confer with counsel, etc., by saying that he thought the defendant fully able to confer with counsel as to his defense unless the term "confer with counsel" meant that he must necessarily remember his deed. If the latter interpretation were the right one, then he must answer as did the witnesses for the defense. He felt that the defendant was much above the average grade of intelligence and was not insane in any sense of the term.

The testimony of the second expert for the commonwealth was briefer and practically the same in the opinions expressed as that just given.

The charge of the court tended toward a verdict of murder in the first degree as far as the crime itself was concerned. The court, however, charged rather strongly in favor of the prisoner as far as related to his mental condition at the time of the trial. The following points were incorporated in his charge, at the request of counsel for the defense.

1. "If you believe that the defendant's mental condition is such that he cannot confer with counsel or prepare his defense, you must find him a lunatic."

2. "For you to find that the defendant is competent to advise with counsel and prepare his defense, you must believe from the evidence that the defendant has *personal knowledge of the commission of the crime* and has sufficient knowledge and memory of the facts and circumstances attending the alleged crime to make a defense thereto."

3. "If you find that the defendant is suffering from or is

afflicted with *traumatic amnesia* and in consequence thereof has no knowledge or recollection of the facts of the crime whereof he is charged, then your finding should be that the defendant is a *lunatic* and *mentally incompetent* to advise with counsel and prepare his defense."

With these points included in the charge, it can readily be seen that if the jury gave heed to the court's charge there was little left to do but to declare the man a lunatic at the time of the trial.

The jury rendered the following verdict: "The defendant, Frank Endrukut is guilty of murder in the first degree, also he is now a lunatic and unable to confer with counsel in regard to the tragedy."

After some two months further spent in prison, Endrukut was finally sent to the State Hospital for the Insane at Norristown, Pa., by order of court. It was reported from the prison that he had grown very violent and he admitted to us that on one occasion he had become very angry and destroyed some furniture in his cell because they would not permit him to see the superintendent of the prison about some matter.

Physical examination on admission at Norristown revealed no evidence of organic nervous lesion of any kind, nor of any other organic disease. He presented no marked stigmata of degeneration, and the contour of his head, facial expression and method of carrying himself showed him to be above the average man in general intelligence. Apart from a few minor ailments, his health has been excellent. He has complained at times of mild headache, but has had no vertigo nor other subjective symptoms. He states that he has never had convulsions of any sort; there is no history or evidence of venereal disease and he claims to have been a very moderate drinker (which his appearance confirms).

After admission he very readily gave the story of his life as told above. He is polite and deferential in manner and at no time has shown irritability of temper. He has shown a tendency to complain about little things. He refused to take his bath because he said he was not allowed to remain long enough in the tub, but when taken by force to the bath-room he laughingly gave in and took his bath as usual. When accused of breaking certain rules he admitted it and said he was willing to take any consequences of

his act. He promised not to break these rules again; was again reported, and this time he lied about the matter. Has taken a dislike to the ward physician and the head attendant in his ward, apparently because they have insisted upon his obeying the rules.

He has never at any time shown delusions nor hallucinations. When asked whether he would go the city to have another skiagraph of his head taken, he refused his consent, saying he would not do so until declared sane by the officials of the hospital. He has given the impression that he expects to be declared sane, serve a few years in prison and then be released. He still insists that there is no bullet in his head. All arguments presented to convince him of the error in his attitude toward his crime are met with polite but skillfully evasive answers. It seems impossible to find vulnerable points in his position, yet he at times gives the impression of one trying to maintain a false position and constantly on the alert to prevent anything being said or done to make that position untenable.

There are several features connected with this case which make it of more than ordinary interest.

First, I have seen no cases of traumatic amnesia reported in which the memory blank was filled in with a fabricated series of events. It is true, as pointed out by Meyer¹ and others, that cases of traumatic insanity are prone to fill in the amnesic periods, when present, with fabrications. However, in such cases the amnesia is usually the least important element in the case and the fabrication tends to disappear if consciousness becomes clear. In traumatic amnesia the lapse in memory is generally complete, clear-cut and usually permanent if induced by obvious organic lesion.

Whether there are enough facts presented in this case upon which to base a diagnosis of traumatic insanity seems most questionable. The man has at times exhibited temperamental tendencies which might perhaps be ascribed to the traumatic element in the case. On the other hand such characteristics might easily have existed previous to the shooting. I allude to his unreasonableness about small matters, history of moderate irritability and a certain attitude of suspicion which is present at times.

¹ A. Meyer. "The Anatomical Facts and Clinical Varieties of Traumatic Insanity," *AM. JR. INSANITY*, Vol. 60.

The chief interest of the case, however, rests in its medico-legal aspects. I have failed to find in medical or medico-legal literature any recorded case where the defense of traumatic amnesia has been employed successfully to convince a jury that a murderer was incompetent to conduct his defense and was, therefore, of unsound mind. The establishing of such a precedent would seem to be a very dangerous one, and, if followed by the courts generally, is likely to lead to many miscarriages of justice in the future. The legal definition of insanity as given in the statute quoted in this case is shown to be defective, since it permits traumatic amnesia for the crime committed to absolve the murderer from punishment for his deed.

The possibility of malingering is constantly to be borne in mind in such a case though, as in most cases, it is extremely difficult to detect its presence. The word-association test, as employed by Jung, Münsterberg and others for the detection of crime, is said to have been tried in this case, but with absolutely no success. It is stated that the answers given were entirely at random and no logical associations nor complexes of any sort could be detected.

[NOTE.—At this date, December 19, 1908, there is no appreciable change in the patient's condition.]

DISCUSSION.

DR. SANGER BROWN.—The question raised in my mind by the paper has special reference to the retrograde amnesia. A case came under my care a few years ago with this symptom very strongly marked. It had developed as a result of very severe coal gas poisoning, apparently accidental. I reported that case and in looking up the literature found that retrograde amnesia followed severe coal gas poisoning, when this had produced profound convulsions. My own patient had been for several hours in a state of the most intense muscular rigidity, so that his physician, in whose house he roomed and who saw him early, stated that the muscles felt like a piece of wood. I found also that other cases had been reported in which retrograde amnesia had followed where severe convulsions had occurred from other causes, as for instance hanging with suicidal intent; possibly the case here reported may have suffered from severe convulsions as a result of the head injury described. To be sure from a medico-legal standpoint the admission of retrograde amnesia would be welcomed by lawyers for the defence in many criminal cases and might be used successfully to defeat the ends of justice.

DR. PERRY.—A number of points brought out in this case show it to be very similar to a case of alcoholic amnesia which I had a few years ago and which also presented a medico-legal aspect. This man had been a periodic drinker, but was able to attend to his business and was not generally considered to be insane. There had been some doubt in the minds of his near relatives upon this point, however, but no legal inquiry in lunacy had been made. He had had some domestic trouble, and shot his wife and a step-daughter. He was on very friendly terms with his step-daughter, and the evidence showed that he was even quite fond of her. At the time of the crime he was entirely free from the immediate influence of drink, although he had been drinking rather more than usual during the past several months. He claimed amnesia of the crime, and I think the facts justified his claim. He was sentenced to the penitentiary, however, and is there now.

I would like to ask Dr. Richardson how close inquiry was made into the history of the man whose case he reports as regards the abuse of alcohol. From the history given of his habits, I should judge the report he gave of himself could not be relied upon and that he had probably been quite a user of alcohol.

DR. RICHARDSON.—With regard to coal gas I have seen one or two cases reported of amnesia of a retrograde type, due to coal gas. I think it is one of the recognized causes of retrograde amnesia.

In this case it was practically impossible to state exactly how far the amnesia retrograded. He remembered having seen this girl on the 24th of the month and he killed her on the 29th. There is no reason to doubt his statements, although the man being a foreigner, it is very difficult to get facts from him in regard to the principal points in the amnesia.

In regard to the alcohol, the man had no history of alcoholism. His appearance would not indicate it, and I think it has no bearing in the case at all.

AN INVESTIGATION INTO THE MERITS OF THYROIDECTOMY AND THYRO-LECITHIN IN THE TREATMENT OF CATATONIA.

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Among the large group of mental maladies that afflict the adolescent, one form is distinguished, by certain neuro-mental characteristics, that does not belong to any other of the sub-groups of this division of the insanities. More than three decades ago this sub-group was differentiated and described by the German physician Kaulbaum (1874), and from one of its most prominent symptoms—muscular spasm or rigidity—was named catatonia. It is a common form of mental disorder, affecting for the most part young persons between the ages of eighteen and twenty-five, yet, is not absolutely confined to these years, as, rarely individuals approaching the thirties are also affected by it.

It is a malady of fairly definite progression, and in the largest proportion of instances tends to a complete annihilation of all the mental activities, the sufferers in the end stages being relegated to an intellectual plane below that of the beast of the field; in fact, far below them, for they become incapable of speaking coherently, of feeding themselves, or of attending in any way to the daily needs of the body.

In the larger proportion of cases, catatonics go through several definite stages before a complete or partial dementia is attained. Most frequently the malady progresses in the following order: First, there is a stage of onset, or prodromal stage, with entire alteration of the character, as well as of the patient's disposition; this eventually passes into a stuporous condition, or period of mutism, the passing from one to the other being attended by a leucocytosis of considerable intensity. The stuporous state lasts for a considerable period, it may be weeks or months, broken now and then by the sufferer waking up to partial or full consciousness of his surroundings. After a time a remission may come, in which the person returns to a more normal condition, yet is never quite himself, or the individual may pass from the stuporous condition into one of motor-mental hyperactivity, with poor ideation, a period of variable duration, after which he slowly and progressively dement. Like that of paresis the duration of the cycle may be a variable one. In some instances the entire cycle may be accomplished within a few months, or it may take years before the stage of dementia arrives.

In the above outline we have only typical cases in mind, the tendency with many being to wake out of the stupor for short periods, during which they may be coherent in thought; or short stages of excitement may be interspersed throughout the stage of catatonic stupor. Likewise, one occasionally sees much milder cases in which the motor symptoms predominate over the mental ones, and which do not run the typical course as given above.

The mental fatalities, in our experience of the disease in this region, have been so distressing, not more than three to four per cent recovering but a part of their mental vigor, that any means of relief, no matter what, would be gladly welcomed.

Many of the catatonics, in their school life, have shown the average intellectual activity, others have been above the average in intellectual attainments, still others have been of a lower mental level, descending to the grade of the imbecile.

This fact offers subject matter for consideration. If persons of presumably stable intellect are stricken with the disease equally with those of a lower intellectual plane, we may at once remove the malady from among the psychoses appertaining to the imbe-

cile class, and look for its origin among other than constitutional disabilities, or, better, separate it from those that belong to inherited tendencies derived from the protoplasm of mother or father.

Our local hospital records are not sufficiently trustworthy to be of assistance, and our private ones are insufficient to enable us to determine the degree of insane heredity in these cases. Certainly they do not show a greater percentage than one-half who have an ancestral tendency to the psychoses. Kraepelin and Bruce also give similar figures.¹ If, in the large proportion of one-half of catatonic cases, we are unable to establish even a trace of ancestral neurotic taint, we must certainly look further for a definite cause.

For a generation these cases have been ascribed by numerous writers to an auto-intoxication, but from what source, and how acting on the nervous system (in particular), as well as on the general body, no one has yet ventured an hypothesis, besides Kraepelin, who ascribes the mental changes to alterations in the activity of the generative organs about the age of adolescence.

For the past two years the writer (Dr. Berkley) has tried in a number of ways to promote a return to the normal in cases of catatonia, but with entire lack of success for a time. All manner of drugs that we thought might favorably influence the malady were used. Tonics of all sorts and descriptions, phosphorus compounds, especially the glycerophosphates, iron, manganese, arsenic, cod-liver oil, hyperalimentation, and lastly iodine. Of the entire list of medicaments iodine was the only one that had any effect, and it seemed to intensify the symptoms, even when the dose was small (1/250 gr. iodine, as iodized starch). Under the use of iodine such patients would wake up out of their stupor to some extent, become talkative and excited, and show increased dermatographia, more highly exalted reflexes, an increased hyperidrosis, as well as a higher pulse rate, but the mental condition did not mend perceptibly, and as soon as the drug was withdrawn they reverted to the earlier condition. It was distressing in the extreme to see a number of young men and women, at the advent of the most useful

¹Wolfson (*Allg. Zeitschr. f. Psych.*, LXIV), the most recent writer on the subject; figures are not here included for the reason that he does not sharply separate the several forms of adolescent psychoses.

period of life, show the most profound alteration of character, stupor, excitement, and finally dementia, without being able to help them at all, so we persisted in our endeavors to find relief, always led by the belief that we were dealing with an auto-intoxication, since this hypothesis presented the best solution of the etiology of the malady. During the course of the investigation we compared, serially, the symptoms of Grave's disease with those of catatonia, and were able to find a certain resemblance between the two maladies, although it must be admitted that the resemblance was superficial, but sufficient to attract attention. Now, holding in view a possible thyro-intoxication hypothesis, we tried after the ordinary drugs had failed, a number of the glandular extracts as well as other animal preparations. Testicular, ovarian and thymus juices, various nuclein preparations, parathyroid, thyroid, iodothyrim, epinephrin, alcoholic solution lecithin, and others were used. From but two of the several preparations did we obtain any effects. Iodothyrim made the patients worse, as did the desiccated thyroid in the ordinary dose of five grains three times a day. As under the iodine the patient awoke out of stupor to some extent, or if the dried gland was pushed he became excited, with increased hyperidrosis and muscular and reflex reactions. The lecithin induced an increase of the leucocytosis, already present, while the red cells increased rapidly. The patients under the lecithin improved physically, but often, when the cases were at all old, without betterment in the mental symptoms. Early cases did much better so far as the mental symptoms were concerned.

In the early winter of 1907, a more systematic investigation was begun at the City Detention Hospital. The aim at first was to induce a high leucocytosis, with the design of producing rapid tissue metabolism, and, secondly, to observe the changes in the condition of the several patients, mentally and physically, during the treatment. This part of the investigation was principally through blood examinations (the urine was examined in addition, but developed nothing of importance), and was directly under the charge of Dr. Hala, of the House Staff, who, after a protracted series of examinations, using various drugs and the several nuclein preparations on the market, of French and American derivation, found that an alcoholic solution of lecithin was the most

certain and efficient medium to increase both red and white cells, thus confirming observations made at an earlier period.

Dr. Hala unfortunately was unable to complete his most interesting work, which, in the main, was giving results similar to those of Bruce of Edinburg on catatonic blood, and for a time this portion of the investigation lapsed.

As previously stated, we had come to the conclusion that in catatonia we had, possibly, to deal with a perversion of the functions of one of the ductless glands, in particular the thyroid body, the latter conclusion drawn from the passing similarity of certain symptoms common to both this malady and Graves's disease, and, in particular, the increased reflexes, the heightened mechanical muscular irritability, hyperidrosis, tremor, the skin changes, and profound loss of weight. Acting upon this hypothesis, we next tried the experiment of feeding our catatonia patients on small doses of desiccated thyroid, one or two grains each day, with the idea of supplying a small portion of normal gland to the bodily economy. Alternating with the thyroid, week by week, lecithin was given in the form of an alcoholic solution to keep up the leucocytosis and increase constructive metabolism.

We first fed four patients upon this regimen, giving all, in addition to the medicaments, large quantities of milk. One case, a quite early one, got well at the end of six weeks, and has remained so for eighteen months. A second case was well at the end of four months, and has not relapsed. A third example did well at first on the thyro-lecithin, but relapsed at the end of four months, owing to the accidental death of a brother. This lady is again, apparently, well, shows no signs of dimming of the intellect, but she is still at times inert, and complains of a feeling of "emptiness" in the head. The fourth, a much more advanced case, did not do so well, brightening up somewhat, but remaining inert and incapable. None of these cases were of any considerable duration, except the last, in which the symptoms of the malady had endured for more than a year. The earliest one was of not more than two months standing. In all of them the thyroid was given for one week, and then alternated with the lecithin for another week; after a time, as the patients grew better, the lecithin was given alone.

This thyro-lecithin treatment, while brilliant in its results when compared with that before obtainable, was not at all satisfactory with cases of longer duration, upon which it seemed to have little or no effect, so we sought further to determine if there was any other means of relieving them.

As we were now further impressed with the hypothesis that we were dealing with a perversion of the thyroid gland, we obtained permission, through the house physicians, from the relatives of several patients to have done upon them the usual surgical operation for exophthalmic goitre, with the hope of changing the quality of the secretion of the organ, or restoring it to a more natural state. Dr. R. H. Follis performed a partial ablation of the organ in ten cases, one in June, one in July, two in October, and one in December, 1907, one in January, three in February, and one in April, 1908. Of these, nine presented the typical form of catatonia as to symptoms, and with the usual mushy thyroid gland, peculiar to the malady, the other equally typical as to symptoms, but with a colloid goitre that had been present since puberty.

To our great surprise and pleasure the three earlier cases recovered their mental equilibrium within a few days or a few weeks after the operation, but there were differences in the manner of recovery. Cases II, III, and IV recovered slowly, little by little, and showed no tendency to relapse. Case I, on the other hand, progressed rapidly for a time, then the remaining half of the thyroid gland increased in size, and with the hypertrophy came a renewal of the mental symptoms, though the patient never became as apathetic and stuporous as before the operation. After a time the goitre decreased in size, and with the diminution came increased mental activity, as well as decrease of the motor symptoms. Finally the patient settled down into a normal condition, a state that has not changed for more than a year. (None of these patients had any drugs given them during the period of convalescence).

The fifth case did not do so well. He was an example of the disease far more advanced than the others, and the stage of mutism had lasted full five months at the time he was thyroidectomized, also in this instance but a small portion of the gland was removed, much smaller than in any of the others.

This patient brightened up after the operation, and for a time it looked as if he also would recover, but he gradually went back, though not quite to the original state, for he was no longer mute and untidy, spending the whole day in bed or on a settee, but spoke a little and that clearly, was tidy in his habits, and on occasion could be induced to play baseball with considerable interest. A second lobectomy was later performed on this patient, with complete recovery of the former mental attainments.

The results given by the pathological examinations made by Dr. McCallum are confusing and indefinite. In Case I, a definite pathological condition could not be made out other than that appertaining to colloid goitre. In Case II the condition was suggestive of exophthalmic goitre. In Case III there was slight fibrosis of the organ, and the same was present in Cases IV, V, and VI. In Cases III and IV a chemical examination of the iodine content was also made. Case III had a very high iodine content,³ while Case IV had a relatively low one.

Reverting to Graves's disease as the best known example of thyrotoxæmia, one finds certain resemblances between the mental and physical symptoms of that malady and catatonia that are interesting, if not significant. The three cardinal signs of the Graves's malady are only noticeable by their absence, also in catatonia the blood pressure is only high at certain stages of the disease, but in both there is rapid pulse, muscular tremor, hyperidrosis, over-active eye, as well as other, reflexes, increased mechanical muscular excitability, dermatographia, hyperidrosis, skin pigmentations, and rapid loss of weight, disturbance of the menses, and vaso-motor pareses.

In both there are psychical alterations, which though ordinarily less severe in Graves's are still quite noticeable. Especially is this true for the prodromal part of both disturbances, when insomnia, headache, vertigo, a change in disposition, and irritability are commonly noted.

The resemblance is far from perfect, yet there is a certain significant coincidence of symptoms, even though the main features of the two diseases are seemingly far apart.

³Due to the fact that the patient had been on potassium iodide, up to two weeks before the thyroidectomy.

The state of the thyroid gland, during life, necessarily commands attention. One finds two conditions. First, an occasional gland that shows more or less hypertrophy, and has the general aspect of belonging to the ordinary colloid goitres. These instances of enlargement are few in number, and careful inquiry into their origin elicits the fact that the swelling of the gland began years before the advent of the mental symptoms. It is accordingly more than doubtful if the colloid form of goitre and catatonia have any relation to each other, and their coincidence is accidental. If the secretion of the organ is perverted, other disturbances of the glandular activities come into play at a later period than that in which the colloid matter begins to accumulate.

In the second, as well as far more numerous class of cases, the one that may be considered as typical of the malady, we find an altogether different state of affairs. The neck over the region of the thyroid looks full, while the gland to the finger is soft and mushy, with an occasional hard knot here and there noticeable in it, which is in contrast to the firm gland found in healthy individuals. Usually the gland is about the normal in size, sometimes it is below the normal. The varying position of the gland makes its quantitative presence uncertain, as occasionally the bulk of it lies behind the trachea.

Blood alterations are more constant in catatonia than in any other form of mental malady, hebephrenia and paresis excepted. In the earlier periods of the disease a leucocytosis of from 11,000 to 18,000 per cubic millimetre is fairly constantly found, which may rise at the beginning of the stage of stupor to a much higher figure (30,000 to 40,000). The relative proportions, between the several forms of white corpuscles, are also changed, and the percentages of childhood are again attained. The small lymphocytes are relatively high, the large forms are unaltered or low (occasionally the reverse condition is found, and the percentage of the large lymphoid cells may be as high as 40 per cent, in one instance up to 43 per cent), the neutrophiles vary from slightly below normal to a low point (48 to 50 per cent), while at certain times the eosinophiles are low, normal, or increased. Mastzellen are occasionally seen; myelocytes are not found so far as we have been able to determine, and are certainly not present in appreciable numbers.

Changes in the red cells cannot be spoken of with any degree of assurance. The Paoli method, it is true, shows a certain stainable body, by him termed *hemaglobigenic*, with constancy, but these bodies are found under other conditions, besides the technique of the method is not free from objection.

In examining patients suffering from catatonia, one is often impressed by their extreme pallor, and apparently anaemic condition, yet in blood examinations one always finds the hemaglobin relatively high, while the number of the erythrocytes is also comparatively high, and this, when every precaution is taken to insure outflow of blood from the ear without pressure. The explanation of this fact is, probably, in that the patients partake of fluids in very small quantities, as many of them have to be fed by the tube, while others refuse to partake of but small quantities of water.

After the partial ablation of the gland, in the few cases operated upon, the differential count has shown very considerable alteration in the relative proportions of the leucocytes, as well as in the general estimate of the total number of these cells. Within the first 48 hours there is a high leucocytosis, with (in the cases that recovered) a drop shortly afterwards, and then a gradual return to the normal proportions between the white elements.

Arguing from the fact that the administration of iodine preparations (in particular the iodized starch), as well as thyroid derivatives, results in some change in the condition of the patients, we might premise that in these cases there was a perversion of the thyroglobulin, with excess of the iodine content, but the chemical examination in the one case does not bear this out. Nevertheless, the excess of iodine content, if it should actually prove to be the case, cannot be all, as has been demonstrated by Hunt,³ who fed preparations of the thyroid gland of still-born infants and kids to mice, and found that this thyroid, from which iodine was absent, increased the resistive lethal power of animals to acetonitrile, though not by any means to the degree that the older iodine-bearing gland did.

It is guesswork to write of the activity or non-activity of the non-iodine bearing constituents of the thyroid gland in the present

³ Hunt, Relation of iodine to the thyroid gland. Jour. Am. Med. Asso., Oct. 19, 1907.

state of our knowledge, for clinically we have no means of differentiating them or getting at them.

CASE I.—Sophy S., æt. 19 years, white, single, native of Maryland. Diagnosis, catatonia.

Family History.—The father died at the age of 40 years of pneumonia. He had been intemperate. The mother is living, æt. 54 years, is healthy, but of hysterical temperament. Besides the patient there were eight brothers and sisters, of whom six are now living, all in good health. Two children died in infancy, one of "spasms" at the age of eight months, the other at 17 days of pneumonia. There was one miscarriage at six months. There is no history of psychoses in the mother's family. The ancestral history of the father is unknown.

Past History.—The mother was very hysterical during the fetal life of the patient, but the birth was quite natural. Measles at 11 years was the only disease of childhood from which she suffered. Menstruated at 15 years; regular, but attended by pain at times, and severe headache. Patient made good progress at school, which she attended for six years. A slight goiter was noticed about the time the menses began, but this did not increase in size. Has never used intoxicants, drugs, or tobacco. Has been employed as a saleswoman since fourteen years, to the beginning of the present illness, and until that time gave satisfaction to her employers. At home the surroundings were moral and pleasant.

According to the statement of the mother and brother of S., the first signs of a departure from mental health was in September, 1905, when she became depressed and had numerous crying spells, also she persistently blamed her mother for not raising her for a higher station in life, that she should have been better educated in order to meet the needs of her future life. These ideas were in part derived from the man to whom she was engaged to be married, who thought himself of a higher social plane than S. Later there were frequent quarrels, and finally the breaking of the engagement. To this some of the depression was due.

However, she remained at work until February, 1906, when she was advised by her employers to give up her position and rest for a time; the reason given was that she had become extremely forgetful and indifferent.

After this she remained at home, sometimes trying to work, more often not. All this time there was severe and protracted headache, which tended to increase as the depression deepened.

For several months longer she remained in about the same condition, reading the Bible and praying constantly, but on February 23, 1907, the condition rapidly changed; she became excited and unmanageable, and had grandiose delusions.

According to the family physician's statement, the girl was of normal mentality until January, 1906, when in consequence of the mentioned quarrels she became melancholic. During the spring of the same year this passed away, but she became very erotic. This had also passed by the early

fall, and only toward the end of February, 1907, did she become unreasonable, unmanageable, and destructive.

Present State.—Admitted to the Detention Hospital March 2, 1907. At this date she was mute, restless, apathetic, catatonic, with marked negativism. The clothing was untidy and unkempt.

Examination.—The patient is a girl of medium build, light complexion, fairly intelligent physiognomy, but with mask-like expression. She is apathetic and will not speak. Eyes do not protrude. Pupils, 2 mm. equal, reactive to light, sympathetic, and psychoreaction. Eyesight normal, retina and optic nerves normal. Tremor of tongue, hands and facial muscles. Head regular in shape, index 81, circumference 54 cm.

Nutrition only fair. Skin is without eruptions, but oily. Slight puffiness about the cheeks. Moderate dermatographia. Tactile and pain sensations uncertain, apparently slightly dulled. Deep and superficial reflexes overactive. Muscular mechanical excitability much above normal. Considerable sweating about hands and feet, and generally lowered vaso-motor state. Heart sounds, especially the second aortic, accentuated. Lungs normal. Pulse rapid, tension low. Temperature fractionally above normal.

The presence of delusions or hallucinations could not be determined on account of the mutism. A blood examination made the day after admission showed a leucocytosis of 20,000. The urine was negative.

March 3 to 12.—Patient has been considerably excited for several days. Hallucinations have been pronounced. There has also been much motor agitation, singing, dancing and shouting, and occasionally answering imaginary voices. Is very incoherent and rambling in response to questions. At times the language flow is so rapid that only single words, without connection, can be made out. Negativism and other physical signs of the malady are pronounced. S. is sleepless, refuses food, and hypnotics are necessary.

On the 15th of the month the patient quieted down, and again became mute, with the customary apathy, indifference and catatonic rigidity. She has gained slightly in flesh, while the face has become more puffy. S. will neither read nor work, and spends her days standing in a corner, without motion. When taken out of doors for an airing, she apparently does not notice anything around her. Is not theatrical or impulsive. Is untidy in her habits.

From the last date to June 27, when a partial thyroidectomy was performed, there was practically no change in her condition.

An examination made June 26 showed her to be absolutely mute and unresponsive to stimuli. The pupillary reactions, including psycho-reaction were plus. Mechanical muscular irritability, deep and superficial reflexes plus. Dermographia well-marked. Slight tremor, with occasional spasmodic jerking of the head, or occasional clonic spasm of the orbicularis oculorum. No eruptions or bronzing, but skin oily, especially about face and neck. Hands clammy with cold perspiration. Lowered vaso-motor condition. Blood pressure 170 mm. R. R.; pulse 87 to 90. Accentuation of second

aortic and second pulmonary sounds. The bronchocele is not larger than in March. Neck over goiter measures 33 cm. Thymus is absent. Area of splenic dullness normal.

Operation [Dr. Follis], June 27, at 3 p. m. About four-fifths of the right lobe of the thyroid gland was removed, the upper and lower poles being spared in order to avoid any possibility of injuring the parathyroid glands; also to avoid additional complications. The portion removed measured 6 cm. in length, 4 cm. in width, and 2.50 cm. in thickness. It presented to the eye the usual appearance of a colloid goitre. The gland was much congested. The portion removed was preserved in Müller-formol, and in absolute alcohol for microscopic examination.

By 6.30 o'clock, the patient had awakened from the ether narcosis, and talked fairly intelligently to the nurse. She soon became restless and excited and inquired for what purpose the "hard collar" was around her neck; also complained of it hurting her. Vomited once. Had hallucinations, seeing her mother in the room. At 8 p. m. was given a hypodermic of one-fourth grain morphia, and slept until 4 o'clock the following morning.

June 28.—Awoke and asked nurse to raise her head so that she could take a glass of orange juice comfortably; also asked that her mother be sent for. Seems perfectly coherent and oriented as to person and place. Pulse 147; T. 98.9°; R. 28. Was quiet and coherent during the day, but at 6 o'clock p. m. became loquacious, incoherent, and sang snatches of a popular song. Evening: pulse 130; T. 99°. Was given ¼ gr. morphia at 8 p. m. and slept well until morning. Awoke at 8.10 a. m. and said "good morning" to the nurse. Ate a good breakfast, but complained of everything tasting peculiarly. Said she felt splendidly.

June 29.—This morning the face is very red and somewhat swollen. Pupils 3.50 mm., hyper-reactive. Reflexes, muscular mechanical excitability and dermatographia, unaltered. P. from 120 to 130; T. 98° to 99°; R. 22. Conversed perfectly coherently to the physician in the afternoon, but was quickly wearied. Becomes mute at times. Wound healing nicely.

June 30.—Slept well without morphia the entire night, and conversed pleasantly and intelligently with the nurse on awakening. Asked for some work to do, and embroidered for a time, doing the work creditably. P. 110 to 130; T. 97°; R. 22.

July 1 to 4.—Sleeps well, appetite good, eyes bright, pupils 2 mm. Face shows a decided change, as it is no longer red and puffy. Hands not so clammy and perspiring. Patient takes lively interest in her surroundings, inquires about other patients, and was allowed to see her mother, with whom she conversed for some time. Talks little to the physicians, but is cheerful and answers questions to the point. Was allowed to go out of doors in charge of the nurse. P. 95 to 96; T. 98.6° to 99°. Wound healing rapidly.

July 5.—S. is much quieter and more apathetic to-day. Would not speak to the physician, but laughed in a silly way, or turns the head with a jerk to the side. Pupils are 2 mm., quite reactive. Dermographia marked.

Deep reflexes not so exalted. Mechanical muscular excitability slightly lessened. Hand dry and reddish. T. 98.7° ; R. 21; P. 95 to 96. *The left half of the thyroid gland is beginning to hypertrophy.*

July 6 to 15.—The patient is quiet most of the time, apathetic, indifferent, sometimes mute for hours, sometimes talking incoherently. Laughs in a silly way, and is fast becoming untidy. The T. has risen to 99.2° ; P. 80 to 82. Wound entirely healed.

July 17.—Pupils equal, $2\frac{1}{2}$ mm. Deep and superficial reflexes much exaggerated. Dermographia and muscular mechanical excitability greater than a few days ago. Extremities cyanotic and bathed in cold sweat. Fairly constant twitching of face and lips. The head is jerked occasionally from side to side. Is mute the greater part of the time, but at others she talks incoherently, though she will reply to direct questions. If the questions are persisted in she becomes rambling and incoherent. The face is again becoming bloated. The hypertrophy of the thyroid gland is still increasing, the neck now measuring 35 cm., 2 cm. more than before the thyroidectomy.

It was decided not to interfere in any way with the condition of the gland, medically or surgically, under the belief that after a time the enlargement would subside of itself.

July 18 to 24.—The patient's condition is a little better. She now does some work and at times speaks consistently and coherently. T. 98.5° to 99° ; P. 95.

July 25.—The motor symptoms are about the same. Extremities cold and covered with clammy sweat. T. from 98.6° to 99° ; P. 97; R. 22.

July 26.—Is menstruating for the first time since admission. The general condition of the patient is good, and she has put on some flesh.

August 4.—Mental and motor state much the same as in last report. Is impulsive at times, swears freely, and is mischievous. The thyroid gland is beginning to decrease in size.

August 14.—Motor signs not so marked. There is no negativism or twitching of the facial muscles, or tremor of the tongue. Weight 134 lbs. The pulse has a low tension. The second aortic sound is accentuated. T. 98.5° to 99° ; P. 95.

August 20.—To-day there are more evident signs of mental improvement. Converses coherently and works well. The thyroid gland is still decreasing. P. 96; T. 98.6° to 99° .

August 23.—Pupils $3\frac{1}{2}$ mm. in diameter, reactive to light and sympathetic stimuli. Other motor phenomena unchanged. Hands and feet are warm, but remain somewhat cyanotic and perspiring. Negativism absent. Is now completely oriented as to place and person. There is no longer a tendency to impulsiveness. Sleep and appetite normal. Pulse contracted, tension low, regular in rhythm. Neck 34 cm. T. 98.6° to 99° ; P. 96; R. 22.

August 26.—Left pupil 4 mm.; right pupil $3\frac{1}{2}$ mm.; reactive. Weight 139 lbs., a considerable gain. Patient prevaricates constantly, but is coherent and anxious to go home. If closely questioned becomes loquacious and swears. Is again inclined to be impulsive.

August 27 to September 9.—Since the last note was made there has been marked improvement. S. reads a good part of the time, and can give a fair account of what she has read. Is anxious to assist her nurse in the ward work. Is seemingly quite rational and is well-behaved. There is also some change in the motor signs. The pupils are $2\frac{1}{2}$ mm., equal and normally reactive. The hands are cynotic, but warm, also there is much less perspiration. The twitching of the facial muscles has almost subsided. Dermographia is present. Muscular mechanical excitability and the reflexes are normal. Shows slight mannerisms in speech. T. 98.6° ; P. 74 to 80.

September 29.—S. continues to improve. Is industrious, perfectly good tempered, and it is difficult to find any departure from normal mentality. The physical signs are about the same as when the last note was made. T. 98.6° ; P. 80; R. 20.

The patient was sent home, with instructions to report on October 8.

October 8.—Patient has been home for a week, and returns in quite normal mental condition. The mother states that she has been industrious, good-tempered, and that she sees no difference in her daughter between the present time and before she was taken ill. Her memory for the past has improved wonderfully; she is well-conducted, and in no wise erotic. The physical signs have not entirely abated. The mechanical muscular excitability is slightly plus, as is also the dermatographia. The deep and superficial reflexes are still somewhat exaggerated, though by no means so well-marked as in June. The pupils are 2 mm. reactive, though normally so, to light, sympathetic and consensual stimuli. The patient has gained considerably in flesh. The pulse is 80, with continued accentuation of the second aortic sound. On slight excitement it rises to 90 beats. The right thyroid is not palpable; the left half is considerably enlarged. The neck measures 33 cm. in circumference. The gland is firm. There is now a slight area of dullness, not more than 3 cm. in diameter, over the region of the thymus gland.

November 8.—Patient reported to hospital, but her condition remains unchanged.

December 7.—Patient is bright; memory good, especially for dates; is rather indolent at home; color good; weighs 158 lbs. Was shown to class. Neck over thyroid measures 32.5 cm.

The following letters show in some measure the differences in the patient's mental condition; the first one is incorrectly dated, the patient then being in the Detention Hospital; in the second the date is correct. Both are in response to requests of the house physician.

BALTIMORE, 2/16 1907.

Mr. C. K. Stewart.

DEAR SIR—Kindly inform me as to the condition of the state of my brother's health in regard to the supposed insanity by which he was conferred upon him by laws of the state of Md. On said date and refer him to the said doctor in case the condition improves. I will offer a reward of

\$100 and costs to said owner in case he improves. He was sent to Spring Grove Asylum on said date and declared insane. Any information regarding same kindly inform him.

Address City Hall,
Baltimore, Md.
Calvert and Saratoga
[Signed S. D. S.]

BALTO. Md. Sept. 20 1907.

DEAR DOCTOR.—I wish to thank you for your kindness for allowing me to go home, which I appreciate very much. I also thank you for your promptness and for being so attentive to me. Especially do I thank you for your kindness and courtesy immediately after the operation. Understand I appreciate every thing that has been done for me but my most earnest desire is that I shall never see this place again.

I remain,
SOPHIA S.

April 5, 1908.—S. has not relapsed to this date.

July 25, 1908.—Patient continues to be normal.

September 25, 1908.—There has been no change in the girl's mental state.

Thyroid Gland. Examination by Dr. MacCallum, S. S.—The alveoli are distended with homogeneous colloid which, however, show some variations in its standing qualities. Some alveoli are filled with pale gray, others with pale pink, and others with bluish pink color. For the most part they are larger than normal and their epithelial cells are very low and flat. In some places, however, the large alveoli are surrounded by very small ones. There is in most instances no distinct folding of the alveolar walls. In one or two alveoli, however, there is a remarkable scalloping of the epithelium by its being uplifted by capillaries.

The above case represents one of the usual forms of the malady in this region, with a somewhat prolonged prodromal period. At the time of the partial ablation of the thyroid, the symptoms were entirely typical of the stage of mutism, and for more than three months there had been no improvement, but, on the contrary, a slow downward trend toward the final stage in the realms of a terminal dementia. Within forty-eight hours after the partial removal of the gland there was a complete change in the psychical manifestations, and a rapid return toward the normal in the motor symptoms. One week after the ablation, the left half of the gland began to show signs of an hypertrophy, and as this progressed, the mental-motor symptoms returned, almost with their former intensity. Nothing whatever was done to change in any way the progress of the thyroid hypertrophy, beyond feeding the patient liberally and attending to the alimentary canal; besides, the condition of the patient was daily watched.

After a time the swelling of the half-gland began to decrease in size,

and with the decrease came an alteration in the physical as well as motor reactions. Gradually there was a return to normal mental activities, so that by October 8, 1907, or 104 days after the ablation, the girl had returned to her earlier natural state, except for some remaining traces of too active reflexes and mechanical muscular excitability.

At the October examination a slight area of dullness was found over the thymus region, which had previously not been apparent. This could not be well accounted for except on the ground of a hyperplasia of the gland following the thyroid ablation. It was distinctly not present before the operation, as the thymus region was carefully examined for any dullness.

BLOOD EXAMINATIONS.—S. S.

Date.	Red cells.	White cells.	Hemoglobin.	Small monos.	Large monos.	Eosin.	Polyns.	Mastz.	Trans.	Blood press. (R. R.)
March 2, 1907*.....	3,000,000	19,600	60%	8.1%	10.1%	0.9%	80.9%	.0%	..	..
" 7+.....	3,290,000	18,000	68	11.2	9.3	1.2	78.3	.0	..	..
" 17+.....	3,000,000	20,000	68	12.0	9.1	1.4	77.0	.5	..	..
" 27.....	3,200,000	17,200	70	13.0	11.8	1.0	74.2	.0	..	..
April 1.....	3,500,000	12,000	70	18.0	10.0	2.0	70.0	.0	..	..
July 28.....	4,600,000	17,800	75	29.0	1.5	2.0	66.0	.6	1.0%	115
Aug. 14.....	5,100,000	12,800	80	21.0	2.0	3.0	72.0	.0	1.0	125
" 21.....	5,250,000	9,600	80	22.0	2.0	1.5	73.0	.0	1.5	135
" 30.....	5,400,000	8,700	80	25.0	2.0	1.0	70.0	.0	2.0	125
Sept. 9.....	5,500,000	9,000	80	24.0	3.0	1.0	70.0	.0	2.0	125
" 13.....	5,300,000	8,200	80	28.0	5.0	1.0	63.0	.0	3.0	125

* Patient excited.

† Patient quiet.

‡ Mute; marked negativism.

CASE II.—John Y., æt. 21 year, a native of Baltimore, by occupation a railway car cleaner, was admitted to the Detention Hospital, March 4, 1907. Diagnosis, catatonia.

Family History.—The father died of a pneumonia, as a result of alcoholic excesses. The mother is living and intelligent, but suffers from "asthma." The patient is one of five brothers and sisters. Of these two brothers died in infancy, also a sister of pneumonia at the age of fifteen years. The other sister is healthy, mentally and physically. A maternal aunt had three attacks of periodic insanity, dying during the last one.

Past History.—The patient's birth was natural. He suffered from diarrhœa and general disturbances of nutrition at the time of the first dentition. There had been no other illness from that time to the event of the present disturbance.

J. attended school for one year, and "was slow to learn." He was always quiet and reserved. Syphilis and gonorrhœa are negative. Tobacco and intoxicants have been used to a very moderate extent. Patient has been a car window washer for the past two years, and he has worked steadily. The home surroundings are poor, but moral.

Present History (statement of the sister).—The patient has always been a good boy, a steady worker, and has attended church regularly. He was always reserved, avoiding strangers, as well as persons of the opposite sex.

The evenings were always spent at home with the family, and not upon the streets.

The first symptoms of mental disturbance noticed by the family were on February 28, 1907.⁴ The man started to work at the usual hour, but returned at eight o'clock a. m. and stated that he wished to rest that day. When inquiry was made as to the reason he wished to rest he said he "did not expect to work every day of his life." Patient spent that day and the succeeding one in the seclusion of his room reading the Bible, but aside from this nothing was noticed in his behavior, or conversation, to indicate that his mental equilibrium was disturbed. At the supper table on the evening of March 1 he announced that he was going to "take Christianity to the church." When asked to explain he made no reply, but picked up a crucifix and went to a Catholic church in the neighborhood, where he asked the priest to baptize it. After returning home, he told the family that he was "the Son of God," but would not give any further information about himself, or what he had done when away from home that evening. The same night he was restless and did not sleep. On the following morning he complained that someone was whispering to him and telling him to do wicked things. Later in the day he became excited, proclaiming himself to be of divine origin. He then went to the Catholic church and assaulted the priest, who had him sent home. That night he showed much motor restlessness, was sleepless, could not be controlled, and on the following morning (March 4) was sent to the Detention Hospital.

On admission J. was loquacious and incoherent, but in a little while he became mute. Then again, after an interval of half an hour, he was gesticulating wildly, was incoherent and talkative, exhorting an imaginary audience, grimacing, assuming theatrical attitudes, jumping, crying, and swearing. Definite delusions could not be determined at this time. A few of the sentences spoken were: "Judge do your duty"; "let me go home"; "if you don't believe in me, you don't believe in God"; "won't you take this hand, gentlemen"? "I love you all"; "will you accept God"? "oh my God"; "holy saints"; "holy mother"; "holy disciples"; "holy angels"; and repetitions of the same character.

When admitted the patient was untidy and unkept, with clothing torn, and soiled with mud.

Physical Examination.—Skull regular, brachycephalic. Index 84. Circumference 56 cm. Nutrition only fair. Appetite poor. Actual disturbance of general sensation could not be definitely determined, though the sense of pain seemed to be dulled. Deep and superficial reflexes everywhere exalted. Mechanical muscular excitability much above normal. Pupils 3 mm., over-reactive. Psychoreaction positive. Tremor of tongue, fingers, and lips. Pulse 72, tension low. Slight arterio-sclerosis of the peripheral arteries. Heart sounds accentuated, especially the second aortic.

⁴The man after recovery stated that the mental indisposition began early in January, 1907.

Lungs negative. Lowered vaso-motor status, with cyanosis of all the extremities, and profuse sweating of the hands and feet. The skin is without eruptions, but moist and cool. There is marked dermatographia. No Romberg, von Graefe, Stellwag, or Babinski. Tongue coated and patient constipated. The thyroid gland is about the normal size, but soft and mushy to the finger. The neck looks rather full.

Urine.—Sp. gr. 1023. Color, amber, transparent; slight sediment on standing. The reaction is alkaline. No albumin, sugar, bile pigments, or indican. Skatol is noticeable as a faint trace. The sulphates as well as phosphates are increased. The microscopic examination showed uric acid crystals, triple phosphates, cylindroids, a few hyaline casts, also bladder epithelium.

Subsequent History.—March 20. The patient has been almost constantly mute since his admission. Is apathetic and indifferent, but is occasionally impulsive. Catatonic rigidity, with negativism, is well-marked. The reflexes and mechanical muscular excitability are far above normal. Dermatographia is well-defined. The skin is oily. The hands and feet are cyanotic and perspiring freely. The patient looks very anæmic and has lost considerable flesh since his admission. A blood count showed the erythrocytes to number 3,780,000; leucocytes 14,000; hemoglobin 78 per cent; small monos. 20.0 per cent; large 17.06 per cent; eosinophiles 3.30 per cent; neutrophiles 58.70 per cent; mastzellen .00.

March 27.—The patient is absolutely mute, negative and catatonic. The general condition is unchanged.

June 5.—J. has remained mute since the last note was written. The skin of the face is of an earthy tint and doughy. The other physical symptoms are unchanged, beyond that the tremor has increased. Pulse 80.

June 30.—The man has not improved at all since the last note was taken, and it was now decided to perform a partial thyroidectomy upon him.

July 1.—Examination preceeding the operation.

The patient has been completely mute for over three months, and no additional mental symptoms have been observed. He does not now resist handling. The iris reactions, to light and sympathetic stimuli, are over ready. The psycho reflex is present. There is no prominence of the eyeballs. Mechanical muscular excitability is much exaggerated, as are likewise the deep and superficial reflexes. Catatonic rigidity is present, but no negativism. Cutaneous sensations are, apparently, dulled. There is well-defined hyperidrosis with a lowered vaso-motor tone. A fine fibrillary tremor is noticeable about the lips and small muscles of the hands. The skin is pallid and doughy, especially about the face. The heart sounds are all accentuated, and especially is this true for the second pulmonic. The pulse remains at 80. Blood pressure 125 R. R. The thyroid gland is palpable, about the average in size, soft to the finger. The bridge can only be determined with difficulty. The neck over the thyroid gland measures 35.5 cm. There is no dullness over the site of the thymus gland. The testicles are firm. A blood examination showed, red cells 3,800,000;

white cells 10,800; hemaglobin 78 per cent; the differential count: small monos. 21 per cent; large monos. 15 per cent; eosinophiles 4.0 per cent; neutrophiles 60.0 per cent; mastzellen .0 per cent.

July 2.—Operation at 3.30 p. m. (Dr. Follis), under ether. About four-fifths of the right lobe of the thyroid gland was removed. The parathyroids were not injured. The portion removed weighed 4.95 grams, and measured in length 5 cm., in width 2 cm., and thickness 1 cm. The ether was not well borne.

Post Operative History.—The patient came out of the ether narcosis at 6.30 p. m. He was then restless and begged to sit up, as he said he was choking. By eight p. m. he was quiet and apparently sleeping. At 9 o'clock he was gasping and moaning. At 1 o'clock a. m. he was given one-fourth grain morphia by the syringe, and was then quiet until four o'clock a. m. He then asked the nurse "how I came here," and the name of the place; also if she was the Holy Mother. He then slept until 4 a. m. Then awoke and asked for a glass of water. When this was given him he remarked "that every one seemed to talk upside down"; also that he would rather be out working. He also asked what made him sick. He slept again from 4.30 until 5 o'clock a. m., then repeated the word "hell" several times, then asked the time. He then added that he did not like the people here, and would like to go home. P. 152 to 125; T. 98.8°; R. 40 to 30.

July 3.—The patient is drenched in perspiration this morning, and looks pale and anxious. Is not nauseated. The eggnog and milk given him are taken freely. He rested all the afternoon, sleeping most of the time. He refused any solid nourishment, saying that his throat hurt him. Later in the evening he was very restless, constantly attempting to get out of bed. At 1 o'clock a. m. he was given a quarter grain of morphia, but continued to be restless until 3 a. m., after which he slept until 6 o'clock.

July 4.—When the patient awoke he tried to speak, but could not talk louder than a whisper. He is apparently very weak, and is perspiring profusely. He slept nearly all the morning, but would start out of sleep at the slightest noise. The wound is healing well. The reflexes are greatly exaggerated, muscular excitability is plus, as is likewise dermatographia. Negativism is absent. The patient is now completely mute. His mother saw him in the afternoon, but no attention was elicited by her presence or inquiries, except that when asked if he knew her he said "yes" in a whisper. At eight o'clock he was sleeping quietly, but awoke at half after eight, and so remained until half after 10 o'clock, when he was given a teaspoonful of paraldehyde. He then slept until early next morning. J. ate a good breakfast. When the wound was dressed it was found to be in good condition. P. 150 to 132; T. 102° to 97°; R. 30 to 24. Hyperidrosis profuse.

July 5.—J. awoke this morning and conversed freely and intelligently to his nurse. He particularly spoke of an empty feeling in the head and some cephalalgia, and said that he had been silent when addressed, be-

cause he could not decide upon a reply to questions. He also mentioned that he had seen imaginary people, but seemed to recognize that they were hallucinations. He added that at times queer ideas passed through his mind which he cannot comprehend, but thinks that these ideas are growing fewer since the operation. As the day advanced he again became mute, or occasionally spoke at random. The pupils are $2\frac{3}{4}$ mm. in diameter, equal, but are still too reactive. The dermatographia is not so pronounced. The activity of the reflexes is perceptibly decreased, though not normal. Muscular mechanical excitability has not decreased. The hands and feet are reddish and dry, but the face and neck are still perspiring freely. The skin of the face is not as doughy as before the operation. The heart sounds are accentuated, the pulse is irregular, the tension low, the rate 99 per minute. T. 96.6° to 97.8° ; R. 23. The man is recovering his appetite.

July 6.—The patient slept without hypnotics until four o'clock a. m., awoke complaining of pain in the throat, and only takes liquid food for fear of the pain. He asked the nurse if he was "Jesus," but seemed satisfied when told that he was not. Is still perspiring profusely. The hands are dry, somewhat cyanotic. Dermographia is still decreasing. The reflexes and muscular excitability are, perhaps, a trifle lowered.

J. rested quietly during the morning, and in the afternoon was quite lucid. At times he spoke of his delusions and hallucinations, and recognized them as false. The patient speaks in a low whisper, but answers questions concisely. T. 100° to 98.6° ; P. 97; R. 22.

July 7.—The general condition is about the same. In the afternoon he conversed with his mother for a few minutes. There is continued hyperidrosis.

July 10.—The general condition is improving. The man is sitting up, reading part of the time. The perspiration is less excessive.

July 11.—The patient slept fairly well during the night, but complained of headache in the morning. A small abscess in the neck was evacuated, and the temperature, which had risen to 103.2° then dropped to 100.2° ; P. 97; R. 28.

July 12.—The man speaks coherently to-day, but is inclined to be quiet. The excessive perspiration is decreasing. T. 100° ; P. 95; R. 22.

July 14.—J. is sitting up to-day, and is composed, lucid, and cheerful. Hyperidrosis has ceased. The reflexes, muscular excitability, and dermatographia and considerably decreased. A few drops of pus are still coming from the abscess. T. 98.4° ; P. 95; R. 22.

July 17.—Since the last note was made the man has gained rapidly. He speaks connectedly and is very willing to do whatever is told him. He sleeps well at night, takes considerable interest in his surroundings, also spends a large part of his time in reading books. The memory, up to the time of his mental indisposition, is good. He complains of feeling weak and speaks considerably about himself, worrying about having been insane. He attributes his insanity to masturbation. At this date there are no mannerisms, no posing, stereotypy, negativism, or impulsiveness. Redden-

ing on irritation of the skin is now faint, and disappears quickly. The superficial reflexes are still exaggerated, the deep ones are normal. Mechanical muscular excitability has much decreased, though it is still above the normal. The pupils are 2.5 mm. equal, normally reactive to light and accommodation, as well as to sympathetic stimuli. The hands and feet and still somewhat cyanotic, cold, and clammy. The pulse is irregular, compressible, with low tension, 120 R. R., 95 beats to the minute. The heart sounds are accentuated. Lungs negative. Bowels regular, appetite good. The patient reads a good deal, and is bright and willing. There is no longer difficulty in holding a conversation. The neck wound is completely healed, and there is no enlargement of the remaining half of the thyroid gland.

July 23.—There is complaint to-day of difficulty in micturition, also of pain in the abdomen. On examination, there is evident infection of the prostate gland, as the result of catheterization during the first few days after the operation. Cystogen 5 grs. t. i. d. T. 101.2°; P. 96; R. 22.

July 30.—A slight subcutaneous hemorrhage, not of traumatic origin, has come over night under each eye. The prostate gland is considerably swollen. T. 99.2°; P. 95; R. 22.

August 5.—J. refused breakfast this morning, and complained of severe pain when the bowels were moved, also that he felt weak and giddy. The temperature has risen to 102.2°, but the sensorium is clear, and neither delusions or hallucinations have appeared. The prostate gland is beginning to show signs of pus formation. T. 103.2°; P. 97; R. 28.

August 8.—The prostatic abscess ruptured externally with relief of the pain and distress. T. 100°; P. 98; R. 28.

The pupils are normally reactive, $2\frac{2}{3}$ mm. Dermographia slight, reflexes slightly exaggerated. The patient is entirely oriented, coherent, and there has been no delirium. The neck over the thyroid gland is now 35 cm.

August 10 to 23.—The man is again steadily improving. Sleep is normal. He is in good spirits, converses pleasantly, and reads a good deal. The motor signs have markedly decreased; dermatographia is faint and disappears quickly. The reflexes are about normal, and mechanical muscular excitability has lessened. The hands are warm, though still clammy. The pupils are equal and normally reactive. There is still slight tremor of the hands and lips.

August 23 to 28.—There has been no change in the patient's condition, other than he is steadily growing stronger and mentally more capable. The memory is excellent.

Sept. 1 to 30.—J. has remained bright and cheerful to this date. He is in good spirits, assists in the work of the ward, and spends a good deal of his time out of doors. The motor symptoms are unchanged since the last examination. The patient was sent home on September 30.

October 8.—The patient reported for examination to-day. The mother says that he has shown no signs of abnormal mentalization, but has been somewhat inert. Sleeps well. Appetite good, memory excellent.

Pupils 2 mm., equal, the internal ocular reflexes normal. There is no protrusion of the eyeballs. Superficial and deep reflexes normal. Mechanical muscular excitability is slightly plus. The skin is warm and dry, and the hands and feet are no longer cyanosed. The vaso-motor state is normal. Dermographia is faint. The general nutrition is excellent, and the man is gaining rapidly in weight. There is no tremor. The neck, over the thyroid, measures 35.5 cm. Apparently there is no hyperplasia of the left half of the gland. Pulse 74. Blood pressure 150 R. R. The accentuation of the heart sounds has decreased. Testicles firm. Splenic dullness 6 cm. No dullness over the thymus gland.

November 8.—The patient has been working at his occupation for several weeks. He is now normal in every respect.

December 20.—J. reported to the hospital for examination. He has been working steadily for about two months, and has been regular and attentive to his duties. He has gained remarkably in flesh, and now weighs 25 pounds more than when he left the hospital. His muscles are full and well-nourished; he looks extremely well, and the face has a more open and intelligent expression. The physical signs of catatonia are negative, except that mechanical muscular irritability is still above the normal. The memory is good, and response to questions is quick and comprehensive.

April 8, 1908.—J. continues to be normal.

October, 1908.—Patient continues in good health.

MICROSCOPIC EXAMINATION (DR. MACCALLUM).

Thyroid.—The thyroid is rather fibrous-looking; strands of connective tissue subdivide it into lobules. The alveoli are for the most part large but very irregular in form with buds and infoldings. The epithelium is cubical, distinctly higher than normal, but not as high as that seen in exophthalmic goitre. There are numerous small alveoli associated with these larger ones, and these also have high epithelium. There are some scattered patches of lymphoid tissue through the thyroid.

BLOOD EXAMINATIONS.—JOHN Y.

Date.	Red cells.	White cells.	Hemoglobin.	Small monos.	Large monos.	Eosin.	Polyns.	Mastz.	Trans.
March 20, 1907.....	3,800,000	15,000	78%	20.0%	15.0%	4.0%	60.5%	.5%	..
April 6.....	3,820,000	13,000	79	22.0	16.0	3.5	58.5	.5	..
" 30.....	3,750,000	10,000	76	22.0	15.0	3.0	60.0	.0	..
May 5.....	3,780,000	11,000	77	23.0	16.0	4.0	57.0	.0	..
" 18.....	3,800,000	10,800	78	21.0	15.0	4.0	60.0	.0	..
July 28.....	4,000,000	10,000	75	22.0	1.5	1.0	73.0	.5	1.5%
Aug. 12.....	5,450,000	18,600	70	22.0	2.0	1.5	71.0	1.0	1.0
" 19.....	5,600,000	15,000	70	24.0	4.0	2.0	70.0	1.0	2.0
" 26.....	6,000,000	9,400	70	21.5	3.0	1.5	72.5	1.0	1.0
Sept. 2.....	5,500,000	10,300	75	22.0	2.0	3.0	71.0	1.0	1.0
" 11.....	5,600,000	10,600	80	20.0	2.0	2.0	75.0	.0	1.0
" 25.....	5,700,000	9,500	75	21.0	3.0	2.0	73.0	.0	.0

Blood pressure: July, 120 to 140; August, 135 to 140; September, 140 (R. R.).

CASE III.—Julia A., a negress, aged 28 years, a domestic servant, was admitted to the Detention Hospital, September 20, 1907. Diagnosis, catatonia.

Family History.—This was negative as to mental troubles, beyond that a maternal aunt suffered with epilepsy. The father died at the age of seventy-five years of some renal malady, the mother at sixty-four of pulmonary tuberculosis. The patient is a younger member of a family of twelve, four dying in infancy. The others are living and in good health. J. was never regarded, by her relatives, as bright.

Past History.—The birth was without instrumental aid. During childhood she suffered from pertussis and measles. At the age of ten years the patient developed attacks of vertigo, in which she would fall, but would not lose consciousness. These attacks occurred both diurnally and nocturnally. Five years later she began having convulsions at night with entire loss of consciousness, the seizures lasting as long as fifteen minutes. The epileptic attacks ceased at the age of twenty-five years.

The menses first appeared at the age of sixteen, and were sometimes irregular and sometimes profuse. Intense headache occasionally occurred at the time of the periods. J. attended school for only eight months, but in that time learned to read. She worked at housework in her own home until she was twenty-five years old; then hired out as a children's nurse. Alcohol, syphilis, drugs, are denied, and signs of luetic trouble are negative.

Present Trouble (sister's statement).—During the month of July, 1907, J. began to grow listless, inclined to be stupid, and was given to silly laughter without apparent cause. About the first of August she began to leave home and wander about the streets, and when questioned by her sister, as to her object in these aimless wanderings, would give no answer. After being well scolded by the family about her habits, she discontinued them, but became restless and impulsive. Later she would get out of bed during the night and break the panes of the windows, or would do other equally senseless acts. Within two weeks after this she became non-reactive to external stimuli, and mute to questions addressed to her. At a still later stage the muscles became spastic, and she became resistive to ordinary attention.

On admission to the Detention Hospital, September 20, 1907, the patient would not reply to questions, was negative, catatonic, and sat with her head fixed on her breast, staring at the floor for hours.

Physical Examination.—Skull dolichocephalic, cephalic index 79.4. Circumference 57 cm. The eyes are without intelligent expression, the face mask-like. The pupils are dilated but equal. The skin is oily. The face looks full. The posterior portion of the scalp is doughy to the feel and thickened, a condition that is also present in the skin of the cheeks. The hard palate is high-arched. The pharynx and tonsils are natural. The breath is foul and there is pronounced constipation. A trivial papular eruption is present on the chest. The mammary glands are shrunken.

From the condition of the abdominal walls, the woman has borne children. The general nutrition is fair; the weight 120 lbs.

The peripheral arteries are slightly thickened. P. 70; R. 20; B. P. 115 R. R. Examination of the thorax is negative, except that the second aortic sound is accentuated. The neck over the thyroid gland measures 30 cm. The gland is palpable, about the natural size, but soft to the finger. The bridge can only be made out with difficulty. There is no thymus fullness. The spleen is of normal size.

The motor signs are well-marked. Dermographia is positive, as is also mechanical muscular excitability. The deep and superficial reflexes are exalted. The pupils are over-reactive to light, to sympathetic and consensual reaction, while the psycho-reaction is present. The pupils vary from 2 to 3 mm. in moderately strong light. The hands and feet are cold and clammy, but there is no general hyperidrosis. The vaso-motor tone is low. There is a well-defined fibrillary tremor of the hands and tongue.

The girl has been entirely mute since her admission, has shown no impulsiveness, but is apathetic, catatonic, and negative. If placed in one position she will retain it for hours. The patient is very untidy, passing urine and feces in her clothing.

A number of urinary examinations gave, sp. gr. 1025. Indican and skatol are in excess and cylindroids are present, but the examination was otherwise negative.

The patient was ordered 15 grs. potassium iodide thrice daily, but this was discontinued at the end of ten days, and hyperalimentation was ordered.

September 22.—The girl is steadily losing weight. She was ordered to be kept in bed in the hospital ward. There she spent her time staring at the ceiling, never addressing anyone, or asking for food or water. When the woman is spoken to or shaken there is no change in the mask-like expression, but if an attempt be made to open the mouth, or change the position of a limb, resistance is immediately encountered. The increased reflexes, muscular hyperexcitability, as well as the other motor symptoms, remain unchanged. Tactile sensibility is apparently normal. The pupils remain over-reactive. The appetite continues good, and artificial feeding is unnecessary. The total amount of urine passed is quite small.

On Oct. 2, 5 grs. of desiccated thyroid, thrice daily, was ordered. No improvement was noted, but the contrary, the woman becoming more untidy, and showed increased negativism when attempts were made to handle her. The thyroid was abandoned on October 14. No further change in the patient, up to October 31, was noted, beyond that she continued to lose weight, and occasionally made an impulsive movement. A partial thyroidectomy was now advised.

November 2.—The operation was begun at 3.30 o'clock, and about four-fifths of the right lobe was removed under ether (by Dr. Follis). Neither of the parathyroid bodies were injured, and the vessels were carefully spared. On the table the muscular rigidity was well-marked, but soon relaxed under ether. At the beginning of the etherization the woman

struggled for air, and then became unconscious. The removed portion of the gland was dark in color from congestion.

Post Operative History.—J. came out from the anesthetic slowly, was much nauseated, vomiting repeatedly. At 6 o'clock she spoke to the nurse, slowly, coherently, and distinctly, the first words she had uttered since her admission. Afterwards, the patient became restless, the pulse weak, and strychnia and morphia had to be administered. At a later hour J. became excited and very difficult to control. The pulse again grew weak and rapid, 160 beats to the minute. The T. rose to 102° and the R. to 28. Some serum was expressed from the wound, after which she became quieter, and the pulse lower.

November 3 and 4.—There has been continued excitement, with constant loud talking, interrupted, at frequent intervals, by attempts to strike the attending nurse. The patient at all times has been most difficult to control. T. 100.8° ; P. 130; R. 22. The pulse dropped to 110 beats after the expression of about a dram of clear serum from the incision, and shortly thereafter fell to 90 beats. The wound is healing nicely.

There is profuse sweating. The face is bloated and puffy. The woman now replies coherently to simple questions, and without any considerable hesitation. Menstruation has begun, for the first time since her admission to the institution.

November 8.—The woman is now up and about her room. The wound has practically healed. She speaks a little voluntarily, but her replies are coherent. Delusions or hallucinations have not been noted for some days, the excitement of the past few days having now subsided. The patient now notices closely what is transpiring around her, and has become cleanly in her habits. She voluntarily looks after her own room, and to the making of her bed. Weight 105 lbs. T. normal; P. 90; tension fair.

The motor symptoms have not perceptibly decreased, except that negativism is absent, and muscular rigidity is subsiding. The face is less puffy. The pupils are 2 mm., not so reactive to stimuli.

November 12.—Patient has been very well conducted since the last note was taken. She has conversed a number of times with her relatives, and intelligently. She does not tire readily and become incoherent. She has shown no signs of delusions or hallucinations, and takes considerable interest in the other patients. Dermographia is slight. The reflexes and mechanical muscular excitability are decreasing. The pulse is fuller, 80 to the minute.

November 16.—The patient has continued to do well. She is easily interested, but does not speak much. The muscular tremor has ceased. The other motor symptoms are abating.

November 17.—A change began to-day in J.'s condition. She is now apathetic and negative, besides showing some muscular rigidity. She is also untidy, mute, and shirks her work. The motor signs are also on the increase. The temperature has risen to 101° , and the pulse is also rising. The wound, which had almost healed, was irrigated.

November 18.—The woman's mental state is the same as yesterday. She is mute, catatonic, untidy, and non-reactive to stimuli. T. 101°; P. 145. *The left half of the thyroid gland is swollen*, otherwise there is nothing to account for the change in the patient's condition.

November 19.—The general condition is unchanged from yesterday, beyond that the temperature is down to 99°, and the pulse to 110 beats.

November 22.—To-day signs of improvement are manifest.

November 23.—The improvement is progressive. The patient has again become tidy in her habits, and resumed the care of her room. She speaks a little, and is no longer catatonic or negative. The other motor signs have not decreased.

November 25.—The improvement is steady and continuous from day to day.

December 1.—The woman attends to cleaning her room, making her bed, and other small duties. She speaks coherently and clearly, though only when addressed. She is also gaining rapidly in weight. Muscular rigidity and negativism are absent. Dermographia has considerably decreased. The reflexes and muscular excitability are above normal, though again decreasing. T. from 98° to 98.6°; P. 89; B. P. 125 R. R.

December 2.—The improvement during the past few days has been so decided that she was allowed to go home on parole, and to-day her sister took her away with instructions to report progress every few days. The deep reflexes and muscular excitability are above normal. J. is absolutely clear in her replies to questions, speaks but little, and is industrious.

December 9.—J. has been bright, industrious, and cheerful, since her return home. She has attended to the cooking and other household work, and has done it well. Curiously, the family consider the woman as mentally more active than she has been at any time in her life.

December 28.—J.'s condition remains unchanged.

January 20.—There has been no relapse to this date.

February 28.—J. continues normal.

July 20.—The woman continues in good mental health.

HISTOLOGICAL REPORT (DR. MACCALLUM).

Julia H. Catatonia. November 2, 1907. 4/5 right thyroid. Removed 4.15 p. m. Received 6 p. m.

A part of the gland seems a little firmer than the rest and is more translucent. The gland in general is almost normal looking; it is reddish-gray and quite homogeneous. On section, rather translucent, with scattered points of yellowish opacity, which are visible only on most careful inspection. No distinct parathyroids seen. The mass weighs a little less than 7 gm. The portion dried weighs, now, when moist 5.03 gm.

PATHOLOGICAL LABORATORY, December 1, 1907.

Report on the iodine content of thyroid gland of Julia H., Bay View:

November 2, 1907.—Weight of dried thyroid 1.55 gm. Crucible negative, Gland treated with 3 gr. sodium hydroxide and ashed. Mass then treated

with 3 gr. potassium nitrate and heated to whiteness. Taken up in water, filtered, and diluted to 50 cc. 45 cc., or nine-tenths of total amount taken for test, was neutralized with 20 per cent sulphuric acid and treated with 5 cc. of chloroform. On shaking, an *intense* red color was obtained.

A standard was made up in the usual way and it required 20 cc. of the potassium iodide (1-5000) to match the color.

Now since 1 cc. is equal to .0002 gr. of potassium iodide, in the *entire* amount we found .00444 gr. of potassium, or .00342 gr. of iodine.

MICROSCOPICAL NOTES.

Thyroid.—Is composed of uniform, rather small alveoli usually rounded in form and showing no infolding of epithelium. The alveoli are lined with a flattened epithelium which is perfectly uniform and normal-looking throughout. The blood vessels show some evidences of calcification and hyaline degeneration in their media.

Except for the fact that the patient was somewhat older than is customary for the beginning of a catatonia, Case III offered the ordinary physical and mental signs of the malady, of fairly severe form. The intense excitement following the partial lobectomy was probably due to the use of too small a drain, and the woman suffered in consequence from the toxæmia of absorption of the thyroid secretion into the general circulation, with rapid pulse and general weakness. The recovery was uninterrupted until the usual time for hypertrophy of the remaining portions of the thyroid gland to occur, when there was an almost complete relapse, with a slow upward movement afterwards.

The blood examinations in this instance differed materially from a number of others, both those referred to in these pages, and unrecorded. The leucocytosis up to date of the thyroidectomy was not up to the average for catatonia; the increase after the operation was fair, but at the date of the last examination it was considerably higher than it should have been. Also the differential count at the time of discharge of the patient from the hospital showed that the blood had not then returned to a normal condition. Nevertheless there has been no relapse.

BLOOD EXAMINATIONS.—JULIA H.

Date.	Red cells.	White cells.	Hema-globin.	Small monos.	Large monos.	Polyns.	Eosin.	Trans.	Mastz.	Blood press. (R. R.)
Oct. 2, 1907*.....	4,600,000	8,400	80%	27.0%	3.0%	67.0%	1.0%	1.0%	1.0%	155
" 4.....	4,300,000	9,200	80	30.0	2.0	65.0	1.0	2.0	.0	125
" 7.....	4,600,000	9,000	80	27.0	2.5	68.0	2.0	.5	.0	130
" 17.....	4,600,000	6,600	75	28.0	2.0	67.0	1.0	1.0	1.0	115
" 25.....	5,500,000	10,500	75	25.0	2.4	69.5	4.6	1.5	.0	130
" 30.....	5,200,000	9,800	75	24.6	4.2	66.8	1.6	2.8	.0	120
Nov. 1.....	4,700,000	16,000	75	36.0	4.5	57.0	1.5	1.0	.0	..
" 6.....	4,200,000	11,200	..	33.0	4.5	59.0	1.0	2.0	.0	..
" 16.....	3,950,000	7,800	70	31.5	5.0	59.5	2.0	0.0	.0	115
" 26.....	4,300,000	13,200	75	33.0	4.0	59.0	3.0	1.0	.0	125
Dec. 2.....	.....	.....	..	38.0	2.0	58.0	1.0	1.0	.0	..

* Patient mute, taking little fluid.

CASE IV.—Albert A., æt. 19 years, a native of Maryland, a factory hand by occupation, was admitted to the Detention Hospital, May 25, 1907. Diagnosis, catatonia.

Family History.—There has been no psychosis of any description on either the father's or mother's side of the family. The father is living, 45 years of age, and is of a somewhat neurasthenic disposition. The mother is also living, aged 39, and is healthy. The other member of the family, a sister, two years older than the patient, is intelligent and also physically healthy.

Past History.—A.'s birth was without instrumental aid. He had measles, whooping cough, also mumps, during childhood, but there has been no more recent illness up to the beginning of the present malady. A. attended the public schools for eight years, and reached the 7th grade in the primary department, indicating that he was less than ordinarily intelligent. The boy has usually been of a cheerful disposition. Gonorrhœa, syphilis, and the abuse of alcohol are denied, and signs are negative.

Present History (father's statement).—On March 1, 1907, A. came home from his work complaining of a sore throat, and remained in the house for two days, by which time the throat was well; he then returned to his occupation. A week later the throat again troubled him; he came home, went to bed, and remained there for several days. The cold soon improved, but the boy continued in bed until the middle of May. The father noticed no mental symptoms, beyond that his son was unusually quiet, until about the first of May, when he began to talk at random and was extremely slow in answering questions. A week later he became excited, swore roundly at every one who came near him, and afterwards would burst into paroxysms of silly laughter, often without apparent cause. If he was refused anything for which he asked, he would have "jerky spasms" and the back would become arched. A few days later he became impulsive, then sleepless, then mute. At times the mutism would be broken by a meaningless jargon. The appetite fell off, and at intervals all food was refused. He then became degraded, untidy, and on May 25, was sent to the Detention Hospital.

On admission he would not reply to questions, was apathetic, at times given to outbreaks of foolish laughter, and was untidy in his personal habits.

Physical Examination (April 26).—Skull brachycephalic, circumference 52 cm., index 82.8. The bowels are constipated, the tongue furred. The man is somewhat emaciated, and weighs 120 lbs. The special senses are, apparently, normal. The pain sense is dulled. The deep and superficial reflexes are greatly exaggerated, as is mechanical muscular excitability. There is a fine tremor of the hands, lips and eyelids, but in the tongue it is particularly noticeable. The pupils are 2 mm. hyper-reactive to light, consensual and sympathetic stimuli. The psycho-reaction is present. Dermographia is well-defined. There is pigmentation of the skin over considerable areas, especially pronounced over the lower region of the back. The peripheral circulation is sluggish, and the hands and feet are cyanotic, cold, and

clammy. The general circulation is also slack. The heart sounds are negative, beyond that the second aortic and second pulmonary are accentuated. The lungs, testes, spleen, and area of thymus dullness are natural. The thyroid gland is small, as well as soft to the finger.

Subsequent History (June 18).—A. has remained entirely mute, catatonic, negative, as well as untidy in his habits since his admission. Dermographia remains very well-marked, as is also the excitability of the deep and superficial reflexes. Mechanical muscular excitability is far above the normal, the slightest tap of the pleximeter eliciting waves of contraction that pass into a tonic cramp of the muscular strands, or there may be a succession of muscular contractions. The spasms are most readily elicited in the muscles of the thenar eminences, or in the pectoral muscles. The tremor of the muscles of the head and hands continues. At times there are spasmodic jerkings of the head to one side. The emaciation is now extreme, and the weight has fallen to 100 lbs., and this despite enforced feeding. The skin from the waist to the mid-thighs has become deeply pigmented, reminding one of Addison's disease, but there are no tubercle bacilli discoverable in the secretions.

The extremities are cold, clammy, and covered with a disagreeable sweat. There is no swelling or boggiess about the face. The hair on the face is scanty, that on the pubes well-developed.

The pupils are 2 mm. in diameter, equal, and hyper-reactive to light, accommodation, as well as the psycho-reaction.

The thyroid gland is not changed; thymus, spleen, testes, and lungs are natural. The heart sounds are unchanged. P. 90; B. P. 120 R. R. Leucocytosis 11,000.

During the summer the patient remained in the same state, except that he could be aroused out of the stupor sufficiently to smile and utter a few disconnected words. The facies is entirely devoid of expression. The man has gained somewhat in flesh. He has been kept out of doors the major part of the time; has been given an especial diet, on which he has gained five pounds, and has been carefully looked after. The pigmentation of the skin gradually disappeared.

November 2.—An examination to-day showed the mental and physical conditions to be practically unchanged, except that he has lost four pounds in weight. There are now impulsive movements, apparently, the outcome of delusions. Rigidity and negativism are marked. The man now smiles when spoken to, and occasionally there are paroxysms of meaningless laughter, lasting as long as a quarter hour. Unless compelled to go out of doors he will lie the entire day flat on his back, the face expressionless, the hands clinched, and the gaze fixed upon the ceiling. Rarely there are a few coherent words, then a lapse into mutism. A. is apparently beginning to dement.

As there seemed no possible chance for a recovery, a partial thyroidec-tomy was determined upon.

November 8.—Operation at 3.30 p. m. (Dr. Follis). Removal of 2.96 grm. of the right half of the thyroid gland. The organ, when exposed, was

small, congested, but otherwise normal. The upper parathyroid body was slightly wounded during the operation. There was considerable struggling, but no cries when the ether was administered. A. came out from the anesthetic at 5.20 p. m., groaned, and said, "Oh my God," and when asked whether his neck hurt him, replied, "yes." An hour later he cried out, "oh, it is coming"; then, "oh, its all over, and it's a little girl," evidently believing that he was in the pangs of labor. Later in the evening he became very resistive, and the nurse was obliged to confine his hands in muffs. T. 100°; P. 98; R. 20. By eleven o'clock he had quieted down, and slept until 4 a. m., when he awoke and asked for a glass of water.

November 9.—This morning A. has voluntarily spoken a good deal, usually about a number of delusional ideas. At times he swears or hums tunes to himself. Later in the day he became more coherent, as well as more readily managed, though he is still abusive. The patient no longer voids urine in the bed, but calls for the urinal. P. 100, feeble; T. 99.8°; R. 20. In the afternoon A.'s mental state varied considerably. Sometimes he would weep, then would sing a mixture of ribald songs and ordinary hymns. He complains constantly of the pain in his neck, and seems to have the idea that he is being tortured. Ice bags were for a time applied to the neck, but he became very restless, and they were finally removed, the ice being given, instead, by the mouth, which seemed to be grateful. During the rest of the afternoon the patient constantly spoke of delusions distressing him, the rambling talk being alternated with loud shouting and singing.

The hands and feet are perspiring freely. The motor signs are unchanged. The man slept fairly comfortably during the night. T. 100°; P. 98; R. 20. A fair amount of liquid nourishment has been taken during the day. The leucocytosis is 18,000.

November 10.—The cold applications to the throat were renewed this morning, but gave the patient a great deal of discomfort. He asked the nurse to read to him; also told her that he "hated the doctors." While the psyche is clearer than before the operation, there is still a great deal of mental confusion, and at times silly laughter and loud singing. When the incision was dressed to-day, it was found to be in good condition. In the late afternoon A. talked to his father coherently for a few minutes. T. 100°; P. 120.

This evening the patient had a spasm of the throat muscles, which was relieved by crushed ice. The man became cyanosed, and broke out in a profuse perspiration. After this he was restless and several times started to get out of bed. At 8 o'clock there was a second spasm of the throat, followed by cyanosis of the face and profuse perspiration. Parathyroid extract was now given. He slept restlessly all night.

November 11.—At 8 o'clock this morning the man was stuporous. A few minutes later he jumped out of bed with a start, and appeared to be choking, after which the breath came with a long sighing inspiration. The face and extremities became cyanotic, and a profuse sweat followed. P. 130 to 97; T. 100° to 99.2°.

A half-hour later he was entirely over the attack, and was eating his

breakfast. The parathyroid was continued, 1/10 gr. every four hours. The wound was also dressed, and found to be doing nicely. A. rested quietly during the day, but at 6 o'clock p. m. there was another laryngeal spasm. This seizure was light in comparison with those preceding it.

There has been no improvement in the mental condition during the day. If questioned the man answers "yes, yes" to everything. Patient is perspiring profusely. The saliva is retained in the mouth, making breathing difficult at times. He was very restless until 8.30 p. m., when he fell asleep, and had a fairly comfortable night. Evening: T. 100°; P. 130; R. 23.

November 11.—A. conversed with his parents to-day for a full half-hour and was coherent, though slow in speech. Reflexes, dermatographia, and muscular excitability unchanged. The hyperidrosis continues. Leucocytes 23,000. T. 100° to 99.4°; P. 98.

November 12.—The patient has to-day manifested considerable interest in his surroundings, and has asked the nurse a number of questions about her life, especially how she liked nursing. He also conversed with his mother for some minutes, though it took considerable urging on her part to make him speak. There is marked hyperidrosis. No change whatever in the motor symptoms. The wound continues to heal. T. 99°; P. 89; R. 20.

November 13.—Last night there was a good deal of rambling talk during sleep. This morning A. is inclined to be anxious and mute. From his actions it is evident that some hallucination is troubling him, as he points to a spot on the wall, and his face assumes a distressed expression. He would not speak to his mother this afternoon. The appetite and digestion continue good.

November 14.—A. slept well last night, but is mute this morning. The eyes, however, follow the nurse about the room. Later in the day he spoke a little, and said he wished to go home. T. 98.6°; P. 90.

November 15.—In the morning the patient laughed to himself in a silly way, but in the afternoon he talked sensibly to his mother for a few minutes.

November 16.—A. awoke this morning, after a sound night's sleep, but is inclined to be mute. However, when urged to answer questions, he does so slowly and collectedly. He has again commenced to take some interest in his surroundings, and observes whatever is transpiring around him. The appetite is ravenous. The dermatographia is fainter, but the pupillary and other reflexes are much too active. There is no rigidity or negativism. Delusions or hallucinations have not yet been noticed during the past two days. Leucocytosis 15,000. T. normal; P. 85 to 90. The wound is completely healed.

November 19.—No further change in the man's condition can be noted. He speaks slowly, coherently, and connectedly when he is questioned, but volunteers nothing. He eats and sleeps well, and is increasing in weight at a rapid rate.

November 21.—A. is to-day cross and disagreeable, but will give no reason for the change in disposition. He is more restless than ordinary

When his mother came to see him he talked with her coherently for some minutes.

November 23.—The patient to-day is allowed the liberty of his room, but will do no work and stands at the window gazing out at the prospect.

November 25.—Is to-day very restless and disinclined to speak, however, he told his father that he wished to go home. The pulse has risen to 120 beats, and the temperature to 99.2° , without any other apparent cause than *a slight swelling of the remaining half of the thyroid gland.* The weight is now 106 lbs.

November 26.—The patient has voluntarily spoken more to-day than on any day since he has been in the infirmary. He is mischievous and teasing. He talked with his mother for some minutes, and seemed quite pleased to see her. He is still perspiring freely. The motor symptoms have not materially changed, though the extremities are not cyanosed. The leucocytosis is still high. Appetite and digestion continue good. T. 98.6° ; P. 87 to 100.

November 27.—The man continues to progress fairly well, speaking coherently and rationally. Temperature and pulse are fractionally higher than yesterday.

November 28.—A. is again mute this morning, and his attention cannot be elicited. Some phlegm accumulated in his throat, when he became excited and had a choking spell. He then wept for some minutes. T. 99.6° ; P. 90 to 110.

November 30.—A. tore the bandage off his throat this morning, and seemed quite disoriented. Later in the day the constant humming of tunes began, but to questions he is mute, or only answers, "yes, yes."

December 1.—The man is quite restless this day, and only answers the "yes, yes" to questions. If the nurse is absent from the room for a moment, he is always found standing at the window. The man takes no interest in anything, and sometimes steals spoons and hides them under the mattress.

December 3.—The patient is brighter to-day, and most anxious to go home. He is also more readily amused for the past few days.

December 9.—A.'s condition has remained unchanged since the last note was taken. The motor and mental conditions have not changed, with the exception that hyperidrosis has decreased. T. normal; P. varies between 82 and 96. To-day he was sent home with the hope that a change of surroundings would bring an improvement.

January 10, 1908.—A.'s parents find that it is impossible to keep him at home, as he has been mute most of the time, inert, and would do nothing in the way of work. He is now markedly negative. The reflexes and mechanical muscular excitability have perceptibly increased. Dermographia is negative except for pilo-cutaneous ridging when the finger nail is drawn over the skin. The pupils are 3 mm., hyper-reactive.

The man replies to questions in monosyllables, and then only after urging. He is apparently rapidly dementing, although, when his room-mate takes him out of doors, he will play ball with some slight show of interest.

January 17.—As but a small portion of the thyroid gland was removed at the first operation, less than in any other case, it is determined to see what effect the removal of a larger portion would have upon his mental and motor condition. To-day a second partial thyroidectomy was performed (by Dr. Follis), and 3.50 grm. of the left half of the gland was ablated. The neck lymphatics had become somewhat enlarged since the previous operation. The patient spoke a little while he was being prepared for the table, but was entirely apathetic and showed slight muscular rigidity.

January 20.—No reaction of moment followed this operation, nor did the man brighten up immediately. He always submitted quietly to having the wound dressed.

January 26.—For the past three days, A. has been fairly coherent, is dressed and about his room. He talks a little to the attendant nurse, and that coherently, but will not speak at all to the physicians.

Pupils 3 mm., reactive, equal. Dermographia is again quite marked, and cutis anserina is elicited by the slightest stroking of the finger. It comes out as a wave-like flash and quickly disappears. Mechanical muscular excitability is well-marked in the pectoral muscles, but has diminished in the forearms and thenar eminences. Reflexes exalted.

January 28.—The patient to-day asked the nurse to take the muffs off his hands, voluntarily saying that he would not disturb the bandages on his neck. The wound is almost healed. He kept the promise.

February 3.—The patient seems brighter than usual, and spoke coherently for a part of the morning. When asked how he felt, he replied, "all right, how are you?" The general condition is good, the appetite is fair, and the man is gaining in flesh, now weighing 120 lbs. Leucocytosis 13,600.

February 10.—The man's condition is unaltered. He is coherent but inert, and no delusions or hallucinations have been noted for several weeks.

February 17.—The weight is still increasing, but the intellectual gain is nothing, or even a falling off, as he now replies to questions at random, and sometimes not at all.

March 13.—During the past three weeks the man has gained greatly. He is now able to reason coherently, and holds a conversation without apparent fatigue. One week ago he was sent home, and has continued to improve, taking quite an interest in his surroundings. The parents report that he is in about his normal condition. The following letter gives a fairly accurate idea of his present state, and is the first one he has written for more than a year.

BALTO., MD., March 16, '08.

Dr. Philips.

DEAR SIR.—It affords me great pleasure to sit down today and drop you a few lines. I have improved very much. Thank you very much for your kindness toward me when I was a patient in your care.

Respectfully yours,

ALBERT A. . . .,

709 35th Street.

April 7.—The patient continues to improve. The father reports that he is active both mentally and physically. The weight is now 134 lbs., a gain of 34 pounds from the lowest point.

April 14.—A. reported to the hospital to-day. He speaks freely, intelligently, and sustains a prolonged conversation without apparent effort. With the exception of slight mechanical muscular excitability, the motor symptoms have all abated, and to all appearances the man is quite normal.

May 12.—There has been no change to date.

July 20.—The man has not relapsed, but has continued in a normal condition.

September 27.—There has been no return of the mental indisposition.

The following is Dr. MacCallum's report as to the microscopic examination and iodine content of the removed portion of the gland:

Albert A. Catatonia. Portion of right thyroid removed, weighing 2.96 gm. Small mass of soft tissue, homogeneous and uniform in appearance throughout. On cut surface the tissue is moist and glutinous, grayish-red. No apparent excess of fibrous tissue; no nodules. No parathyroids seen. 2.1 gm. of the thyroid preserved for drying and estimation of iodine.

MICROSCOPICAL NOTES.

Thyroid.—Is composed of alveoli of moderate size, very round and smooth in outline and of fairly uniform size. They contain a good deal of homogeneous colloid. The alveoli are lined with flattened epithelium which is entirely uniform in character. The connective tissue forms some quite coarse bundles throughout the gland, which carry abundant blood vessels, but on the whole it does not seem to be markedly increased in amount. There is no unfolding of the epithelial layer.

Iodine Content.—Weight of dried gland .7 gm. Crucible negative. 11.7 cc. of 1 to 5000 solution of potassium iodide required to match the color of the gland solution. Amount of KI. present .00234 gm. Amount of iodine present .0017784 gm.

Second Ablation, January 17, 1908.—Weight of thyroid tissue 3.46 gm. The specimen was hardened in alcohol.

Microscopically the alveoli are distended with colloid which is thin and pale, staining sometimes lilac, sometimes pink. The alveolar walls are thin and the epithelium is low and flat. The alveoli in general are larger than in the first specimen. Some of them are surrounded by small columns of other alveoli of smaller size, but there is no direct evidence of infolding of the epithelium. The connective tissue is abundant.

From the standpoint of the mental symptoms, Case IV showed few variations from the ordinary type of severe catatonia. Among the physical ones the extensive areas of bronzing of the back thigh and flank were much more pronounced than is often seen. This bronzing almost completely disappeared during the summer and did not recur when the weather

became colder. When the first partial lobectomy was performed, the case was, to all appearances, hopeless, as the brand marks of a dementia with profound cachexia had begun, and accordingly we were not surprised at the small amount of improvement that followed the operation, but, rather, on the other hand, were encouraged by the partial improvement in the mental processes that followed the period of customary initial reaction. It is to be noted that a gain in weight began shortly after the partial section, though the diet was little changed from what it had been before, apparently showing that a reduction in the quantity of the thyroid hormone thrown into the general circulation was productive of increased metabolism. So far as possible the conditions were the same both before and after the section, as to food and attention, the man on both occasions being in bed.

For a considerable time after the second lobectomy, about two-thirds of the left half of the gland now being removed, there was no mental improvement, only a steady gain in weight, and only after the man had reached, approximately, his normal weight did the mental attainments rise to anything approaching their normal level.

BLOOD EXAMINATIONS.—ALBERT A.

Date.	Red cells.	White cells.	Hemoglobin.	Small monos.	Large monos.	Polys.	Eosin.	Trans.	Mastz.	Blood press. (R. R.)
Oct. 22, 1907.....	5,700,000	11,200	75%	21.8%	3.0%	72.2%	1.6%	1.4%	.0%	120
" 30.....	5,850,007	10,200	75	24.0	2.6	69.4	2.5	1.0	.5	120
Nov. 1.....	5,550,000	11,800	..	26.0	4.0	66.0	1.4	2.6	.0	120
" 6.....	5,100,000	16,200	..	19.5	3.0	75.0	1.5	1.0	.0	115
" 9.....	5,300,000	18,000	75	25.0	2.0	71.0	2.0	1.0	.0	115
Jan. 20, 1908.....	5,450,000	15,600	75	23.0	3.0	70.0	1.0	3.0	.0	115
Feb. 4.....	5,200,000	13,600	..	27.0	3.0	67.0	1.0	2.0	.0	115

Contrasted with all previous results in the treatment of catatonia, the preceding serial four cases seem most remarkable in that they should all have recovered their mentality and that none of them should have relapsed within a period of months. Equally remarkable is the manner of recovery, in two the restoration of the mental powers was within a few days, while with others a number of weeks elapsed before there was a return of any degree of mental vigor. With the one exception all of them did well up to the time of the beginning of hypertrophy of the remaining half of the gland, and then there came mental recessions, and thereafter a varying return to health.

The results were so remarkable that we considered them too good to be true, and there was the possibility that we had chanced upon exceptional cases. The cases, though in the Public Deten-

tion Hospital, were given more attention than had they been private patients; they were assigned a faithful nurse especially versed in the management of such cases, and whose attention was un-failing, they were fed both before and after the operation with large supplies of nourishing and easily digested food, and a portion of the favorable result must be attributed to these accessory causes.

The available material within the walls of the Detention Hospital being exhausted, we asked permission of the Medical Superintendent of the Second Maryland State Asylum to examine the catatonic patients in his institution, to determine if a few patients suitable for the operation could not be selected from among the large material there.

About 40 persons in various stages of the malady were examined, and from these three were chosen, two women and a man. None of these cases were early ones; in fact, all were of greater duration than those previously lobectomized.

In none of the three cases did permanent results follow. For a few days after the operation there was increased reaction to external stimuli, and then they slowly returned to their previous mute, catatonic state. With the man this might have been expected, owing to the long duration of the malady, but with the girls, though as already mentioned, they were of greater length than any of those in the Detention Hospital, a favorable result was expected.

CASE V.—Julia K., æt. 22 years, admitted to the hospital January 25th, 1907. Diagnosis, catatonia. On examination, February 6, 1908, has mask-like expression, extremities rigid, negative, resistant, absolutely mute. Eye reflexes, including psychoreaction, hyperactive. Superficial as well as deep reflexes exalted. Hyperidrosis, cyanosis, dermatographia. Muscular mechanical irritability plus. Is seated during the daytime in a chair, motionless, with clinched hands.

Partial Lobectomy, February 20 (Dr. Follis).—On February 22, two days later, the face is not so devoid of expression, and the patient is somewhat reactive to external stimuli, though she will not speak voluntarily, but only when loudly questioned. The general condition is good, and the incision is healing nicely. T. 102° to 99°; P. 110 to 104; R. 20. She takes food readily.

Further than this the patient did not improve; the pulse decreased in frequency, though still remaining somewhat elevated. Leucocytosis in this

case was low, 6600 per cm., with erythrocytes 4,700,000. What little gain there was, was gradually lost, until at the date of writing she is now in the same state as before the partial lobectomy.⁵

CASE VI.—Lillian S., æt. 23, admitted to the hospital January 24, 1907. Diagnosis, catatonia. At the date of examination (February 6, 1908), there had been no change in the mental condition for many months. She sits with bowed head in her chair, motionless, with mask-like face. Both kinds of reflexes are exalted. Mechanical muscular excitability is above normal. Dermographia, profuse sweating, and cyanosis are present. The eye reflexes are too active, but the psycho-reaction could not be elicited. Is rigid and resistive.

Partial Lobectomy, February 20, 1908 (Dr. Follis).—The patient was excited and restless on coming out of the ether, but quieted down in a few hours. The temperature rose to 102°, then dropped to 99°. The pulse varied from 120 to 104. Respiration 16 to 18.

February 22.—The girl lies in bed with eyes closed, the lids occasionally twitching, but entirely mute. The face is to-day puffed and flushed. Dermographia and the other motor signs are unchanged. The patient did not improve at all afterwards. Pre-operative leucocytosis 10,200. Erythrocytes 2,716,000. Urine negative.

CASE VII.—Burton B., æt. 20 years, admitted to the hospital October 15, having been insane for a number of months. He was regarded as a bright boy at school. At the date of February 6, 1908, was catatonic, negative, with all the ordinary motor signs.

Partial Lobectomy, February 20.—After the operation he became restless, slightly more reactive to external stimuli, and for the time rigidity and negativism were absent. T. 102.4° to 104°; P. 108 to 88; R. 16 to 20.

February 2.—Reflexes, deep and superficial, unchanged; other motor symptoms unchanged. The man now speaks on urging, coherently, but is constantly muttering a string of disconnected words. The patient did not improve perceptibly during the succeeding days, and gradually lapsed into the old catatonic state.

Pre-operative leucocytosis 8600. Reds 5,504,000.

The failure of the partial lobectomy in these three cases may be attributed to one of several causes. First, the duration of the malady in all of them was longer than in any of those previously operated upon; secondly, the amount of the thyroid gland removed may not have been sufficient to induce decided changes in the

⁵ *April 20*.—This patient has lately shown considerable signs of improvement, and is certainly in a much better mental condition than before the operation—sufficient to allow of her being sent to her home.

metabolism, as in Case IV of this series. None of these patients has gained in weight like the others, and this should always be the rule, the increased nutrition coming, *pari passu*, with the mental improvement.

The next case was seen through the kindness of Dr. E. N. Brush, of the Sheppard and Enoch Pratt Hospital.

CASE VIII.—Luke M., æt. 25 years, a native of Marland, single, express driver by occupation, was admitted to the Sheppard-Pratt Hospital March 5, 1908.

Family History.—The father died of spinal meningitis at the age of 52 years. The mother died of organic heart disease, aged 48 years. There is no history of insanity or nervous diseases of any kind in the forebears. There was also no history of consanguinity, epilepsy, or of ancestral alcoholism.

The patient is the youngest of four children, a sister aged 30, healthy; a brother 29 years of age, married and in good health; a sister aged 26, healthy, and the patient 25 years old, who has never before been subject to mental disturbance.

Past History.—M. passed through the usual diseases of childhood. He attended the public schools from 7 to 14 years, and got along fairly well, reaching the seventh primary grade. At the age of 14 he was employed in a canning factory, where he worked for 2 years. At 17 years he was employed by Belding Bros. in their silk house. For the past 5 years he has been with the United States Express Co. in the capacity of driver, and has given perfect satisfaction, and held his position to the beginning of the present illness, which dates from the last week in October, 1907.

M. took an occasional drink, but rarely became intoxicated. Patient was of rather a jovial disposition, and attended the theaters regularly, but kept very good hours.

There is no suspicion of a luetic infection.

In the latter part of October, 1907, he suffered from a severe cold and muscular aching, probably a form of *la grippe*, which was prevalent at that time, and he remained under treatment for about three weeks. On December 14 it was noticed that he was unusually quiet, and sat for several hours in the evening without entering into the conversation. On December 16 he decided to go back to work, although he was still feeling ill. He left the house at 6.30 a. m., and did not come back until 10 o'clock the following day. When he did return, M. was unable to give an account of where he had spent the night, or to remember anything of what he had done on the previous day. To the other members of the household he appeared to be stupid, and later became mute. He also refused nourishment, so that it became necessary to feed him artificially. Since December 25 he has changed but little. After considerable stimulation he responded to questions in monosyllables, could be persuaded to eat his meals, seemed per-

fectly willing to remain in bed, and like a child required to be dressed and be attended to. If placed on a chair he remained there until someone came to change his position. He never resisted attention, nor was there any apparent muscular rigidity.

On his admission to the institution he was put to bed and given the usual routine treatment. After considerable urging he told his name and address to the examining physician, but further than this it was impossible to obtain any response.

March 7.—The patient has slept very well since his admission, without the aid of hypnotics. He will reply to questions only after some urging, and then in monosyllables. Is somewhat resistive. There are occasional outbursts of incoherent laughter. Usually he lies quietly in bed, and so far is tidy in his habits. The facial expression is blank. An examination of the cutaneous sensations showed considerable anesthesia and analgesia; even a pin-thrust through the ear meeting with no response. M. has to be urged to eat, but it is sufficient to place a fork in his hands and the food before him.

Patient is a poorly-nourished man, weighing on admission 116 lbs. (normal weight 135 to 140). The skin and mucous membranes have a good color. The palatal arch is high.

Pupils regular in outline, 2.5 mm., reacting over-promptly to light, accommodation, consensual, and McCarthy reaction.

Lungs negative. Heart sounds somewhat accentuated, both at apex and base. Pulse 80 to the minute. There is a light degree of peripheral arteriosclerosis.

Abdomen negative.

Thyroid gland somewhat enlarged, especially the left lobe. No other glandular enlargements.

Genitalia negative; cremasteric reflex present.

The superficial and deep reflexes are everywhere very active. Muscular mechanical excitability above normal. Dermographia slight but persistent. Slight hyperidrosis of the hands.

March 20.—There has been no change in the patient since the last note was made.

April 20.—M. has continued in the same inert, mute condition as during the past month. On considerable urging to answer, he will reply in monosyllables. He also goes through the prescribed gymnastic exercises, but displays no interest in them. He smiles a great deal without apparent cause, and frequently gives vent to loud laughter. He never asks for any thing, and is apparently contented with his surroundings. If left alone he will remain in bed or will sit wherever placed for hours. He will not eat except after urging. Occasionally he is uncleanly in his habits.

April 25.—After a close examination into the man's physical state a partial thyroidectomy was decided upon.

Blood Examination.—Red cells 6,500,000. Leucocytes 5000. Differential count: Neutrophils 67.4 per cent. Small monos. 23.00 per cent. Large

monos. 8.00 per cent. Eosinophiles 2.40 per cent. Basophiles 0.40 per cent. Hemoglobin 92 per cent.

Previous to the determination upon an operation, the patient had been treated with 16 gr. of thyroid extract, daily, for several weeks. On its administration there was a rise of the bodily temperature of several degrees, also an increase of the pulse rate, both of which fell after the first week. Mentally, during this period, there was little change in the man's condition; perhaps a little more dullness.

April 30.—Partial thyroidectomy about 5 p. m. (Dr. Follis), about four-fifths of the left lobe of the thyroid gland being removed, the parathyroids and blood vessels being carefully spared. Macroscopically the excised portion of the gland seemed firmer than natural, especially in two places, where it gave the finger the feel of a firm nodule the size of a bean. On section of these firmer places nothing could be delimited from the surrounding portions of the gland, though there was seemingly a lessened amount of colloid material in these places.

May 1.—After recovering from the anesthetic, M. was sleepless and restless. Later was given a quarter grain morphia, after which he slept until morning. When visited by the house physician at 10 o'clock a. m. he talked rationally and rather freely, and said that his "mind felt clear."

Patient's memory this morning is good. He gives dates correctly up to about Christmas, and explained his mutism by saying that he felt dull and indifferent, also that at times he tried to speak, but could not. Patient is quite cheerful, makes joking remarks, and seems to be appreciative of his entire illness, as well as of his present condition. No definite delusions or hallucinations can now be determined.

Interrogative.—Q. How long did you work for the Adams Express Co? A. United States. Q. How long at the United States Co.? A. Five years. Q. Were you in the store? A. Wagon. Q. Always on the wagon? Shakes head. Q. How are you feeling? A. A little sore. Q. Can you talk better than before the operation? A. Yes sir.

May 3.—Blood count: Leucocytosis 10,400. Neutrophiles 73 per cent. Small monos. 17 per cent. Large monos. 8.5 per cent. Eosinophiles 1.2 per cent. Basophiles 0.3 per cent.

May 4.—The stitches were removed from the wound to-day. Mentally the patient is not so active as the morning following the operation. He answers the majority of the questions fairly well, however, and promptly. He is also appreciative of what is going on around him, and shows some interest in the other patients, about whom he makes jocular and pointed remarks.

Later in the day M. related a number of incidents in his past life. He spoke of having a peculiar sensation when in his stupid condition, also that he thought he was in foreign countries, mentioning Africa; that there were savages around him, and that in some way he was controlled by these savages. He then returned to the peculiar sensation referred to above, which was as if he were "pushed up and up" until he was on the top of a

high tower, then he would suddenly fall "down, down," after which he would be fighting for his life until finally he was "broke up" and went off into "nothing." Patient slept badly last night and was disturbed by noises.

May 5.—M. is mute this morning, but after urging, responded in monosyllables. In the afternoon he spoke freely to the house physician, and showed but slight mental retardation. Leucocytosis 9700. Neutrophiles 71.8 per cent. Small monos. 14 per cent. Large monos. 11 per cent. Eosinophiles 2.0 per cent. Basophiles 0.2 per cent.

May 9.—The wound is entirely healed. Mentally the patient shows increased retardation over that of four or five days ago, but there is considerable variability during the day, as he sometimes responds much more promptly than at others.

May 12.—To-day the patient is talking much more freely. He now takes the initiative, and shows a marked interest in his case, as well as very good insight into his mental condition.

Interrogative.—Q. When were you operated on? A. Friday. Q. How many days is it now since the operation? A. Twelve. Q. What is to-day? A. Tuesday (correct). Q. You are feeling a lot better, are you not? A. I can't kick. Q. Do you not remember what has happened to you in the past three or four months? A. No! like when I was taken sick I had a bad fever and laid on the bed, and that was the last I remember until I came to again. Q. When did you come to? A. They say it was a couple of weeks; don't know whether they operated on me or not. I know at one time I was seeing everything from a lamp post to a freight car. Q. Do you know that you were away from home for a night and a day when you were first taken sick—do you remember anything about it. A. I remember that I walked and walked for a while, and then I came back and went into the house, and I heard somebody say, "who is it?" I must have looked so dog-gone bad they didn't know me. I took some coffee before I went to bed, and that is the last thing I remember. I had periods when I went off. Q. How long were the periods when you felt all right? A. Like to-day I would feel all right, and to-morrow I would feel half dumb—not exactly a lunatic—just felt like you didn't care what happened. Q. Had you been drinking then? No sir, not a drop. I admit I have drank, and have been intoxicated more than once. I had fever—just like my head was going round—just like I was intoxicated—like my brain was on fire. Q. Did it come on suddenly while you were at work? No. During the night I was taken that way, and when I started to work I was just about half crazy, and I just wandered about, and they said I didn't come home until the following day. Q. You had some ideas of suicide, didn't you? A. I tried to. I felt distressed. Q. Over your condition, because your mind was confused? A. Yes, that was it, and I knew that I would never be the same man again after what I had gone through. I know that I am not the man now I was—before I was taken sick.

May 19.—Leucocytosis 8200. Differential count: Neutrophiles 62 per cent. Small monos. 31 per cent. Large monos. 4.1 per cent. Eosinophiles 2.2 per cent. Basophiles 0.2 per cent.

May 20.—Since the last note taken, M. has gradually gone backward and is now in about the same mental condition as before the operation. He is mute, does nothing whatever to occupy himself, has to be urged to eat, and at times it is necessary to feed him, and remains in one position for hours at a time.

May 26.—During the past week the patient has gained four and a half pounds, also, now, after considerable urging, he will respond to questions, and is gradually becoming a little brighter.

May 28.—Interrogative: Q. M. what are you reading? A. With Lee in Virginia. Q. Is it interesting? A. Just started it. Q. How much have you read? A. Where the negro, he gets on the boat and starts away to England. Q. Is that all? A. He was a run-away slave. Q. What trouble did he have? A. It was just about why the Civil War broke out—he was beaten by an overseer of the place, was helped away, and escaped by (the aid of) the son of the man that owned the place. Q. How do you feel? (pause). Q. Does your head ache? A. I feel pretty good. Q. Appetite good? A. Yes sir.

May 30.—M. was again reading a book his sister brought him, and was able to remember the run of the story so far as he had read, and after considerable urging would answer questions about himself.

June 26.—M. is progressing slowly, is gaining weight and is slightly more active mentally. A few days ago he was placed on lecithin and milk.

Interrogative.—Q. You are feeling better, are you not? A. Yes sir, I feel pretty good. Q. Gained in weight? A. Yes sir. Q. How many pounds in the last two weeks? A. About ten.

M. is gradually gaining in weight. He responds to questions readily, and for the past week has shown marked improvement in his mental condition. He takes an interest in games, reads the papers and magazines, and puts new life into his gymnastic exercises. Patient plays an exceptionally good game of checkers, and seems to enjoy it. The deep reflexes are nearly normal, the superficial ones are still exaggerated. Mechanical muscular excitability is still plus. Dermographia has vanished.

July 6.—Leucocytes 5500. Neutrophiles 54.5 per cent. Small monos. 41.4 per cent. Large monos. 1.5 per cent. Eosinophiles 1.6 per cent. Basophiles 1.0 per cent. Blood pressure 120 mm.

July 14.—The patient is steadily gaining in weight, and has attained 130 lbs., nearly the normal. There is great mental improvement, though some thought retardation remains; besides the facial expression is not natural. The eye and superficial reflexes are still too active. The lecithin and milk are being continued.

August 30.—M. has gradually improved since the last note, and has continued to gain in weight, though more slowly. He responds to questions promptly, and gives a fairly accurate account of his illness since his arrival at the hospital, but has complete amnesia for a number of weeks previous to his admission. He remembers leaving home, a few weeks before Christmas, with the intention of going to work, but is unable to

give any account of himself for the next two days, and now does not recall going home.

The memory for remote events is good. M. now reads the papers, plays checkers and baseball, and shows a fairly good grasp on current events, also remembers accurately what he reads.

When asked for his reason for not replying to questions during his illness he states that he was unable to think quickly, also that he believed that there was a war going on between the Protestants and Catholics, and that in consequence he was despondent and contemplated suicide. At the same time he realized that his mind was affected, also that he felt that he would not recover.

He now thinks that he is perfectly well, and daily growing stronger, also that he will soon be able to take up his work. The judgment seems good.

Interrogative.—Q. Do you think you are as well now as before your illness? A. Yes sir, I feel perfectly well. Q. Do you think as quickly as you did before your illness? A. Yes sir. Q. And as clearly? A. Yes sir. Q. Interested in everything? A. Yes sir, I am—you mean take notice of things? Q. Interested in things in general as previously? A. Yes sir. Q. What do you intend doing when you go home? A. Knock around for a couple of weeks, and get used to walking over those cobble-stones (smiling), and then go to work. Q. Is your position still open? A. The boss came up to the house a couple of times, and said any time I came back it was open to me. The fellow that has my place falls back into his own when I go back. I don't like to knock him out, but number one comes first. He goes back on single wagon when I go back, at least that's what the boss told me. Q. You think that you are perfectly well do you? A. Yes sir, I feel all right. Q. Do you realize that you have been pretty sick? A. Yes sir, I felt that I would never eat another Christmas dinner. I feel all right now, feel that I could do a little work, in fact I think when I get back to work I will feel better—get my mind down to working. Q. Do you remember being tube fed at home? A. No sir, I don't remember that, that's when I seen stars I guess. I remember I felt at one time like someone was banging me around from post to post. I'll try and forget all that part of it when I get back (smiling), (pause), you certainly did fix me up, and I appreciate it—you could not have done any more (somewhat embarrassed).

Discharged, September 17, 1908.

December 3.—M. reported to-day. He has been working steadily from 6 o'clock a. m. until 8 p. m. since October 1 for the express company. He is mentally normal, the memory excellent, and reaction time good. He also has plenty of energy.

The man weighs 133½ lbs. (height 5 ft. 7½ in.). The neck over the thyroid gland is 32½ cm. There is no area of thymus dullness, nor evidence of persistent hypertrophy of the remaining half of the thyroid gland.

The reflexes and mechanical muscular excitability are rather above the

normal. Dermographia and hyperidrosis have entirely disappeared. The circulation is good. P. 74.

The man was warned against over-exertion, and instructed to take a larger allowance of milk than he had been doing, also to eat more regularly.

HISTOLOGICAL EXAMINATION OF THE THYROID TISSUE (DR. CLARENCE B. FARRAR).

The only divergence from the normal was the distention of practically all the follicles with colloid material. The lining epithelial cells are obviously much flattened, there being nowhere any cylindrical cells. Many follicles were of considerable size, and obviously represented confluences of several follicles. In many instances the distended follicles occupied the microscopic field, the inter-follicular connective tissue fibers being reduced to a minimum. In themselves, the connective tissue and blood vessels showed no pathological changes, also, there was no evidence of any inflammatory process.*

LECITHIN IN CATATONIA.

The very excellent results that have followed the administration of the alcoholic solution of lecithin in many cases of nervous asthenia (not cerebrasthenia), as well as in a few cases of exophthalmic goiter, for of the latter malady I do not see any considerable number of examples during the course of a year, has led me to try the same remedy in a few cases of early catatonia.

Curiously, the neurasthenics and goiter cases, despite the nauseous and disagreeable smell of the alcoholic solution of lecithin, cling to the remedy as an opium habitue does to the latter drug, and never seem to tire of it until the nervous symptoms are allayed, and the gain in weight approaches the normal. Again, all the goiter and asthenics patients, who are on lecithin, state that an hour after the medicine is taken "their nerves" are quiet, and for a time there is cessation of the active symptoms, such as the tremor, and a slow return after some hours. Some of the cases compare its tranquilizing power to that of the bromides, but state that it is much greater. I have had a number of cases of asthenia

* A ninth case, a young woman of 24 years, was operated on December 10, 1908. A month afterwards there was a return to the normal of all the corporeal signs, while the psychical symptoms were progressively diminishing, the only thing remaining being a hardly perceptible mental retardation. This case is still under observation.

placed for alternate weeks on lecithin, and a compound preparation of the glycerophosphates of sodium, calcium, iron, manganese, with or without the glycerophosphate of quinine and extract of gentian, only to find them lose weight, with increase of the nervous phenomena on the glycerophosphates, and a gain in weight with abatement of the nervous symptoms while on the lecithin. In both weeks the hyperalimentation remained the same, so that nothing could be attributed to differences in diet.

It is naturally not to be expected that either asthenic nerves or the Graves's malady is to be cured within a week or a month by these remedies, and, again, it is often not possible to place the patients on the lecithin when they first come for treatment, for the disordered digestion, or other accompanying ailment must first be treated before the lecithin can be administered. As a rule, it acts far better when the hemaglobin is below 70 per cent, Gowers, and the coagulation of the blood is slow. Again careful attention to the diet should never be forgotten, remembering that every individual has idiosyncrasies toward certain food products that must be respected, also that patience and the careful notice of trivial symptoms, as well as the judicious treatment of these, will repay in increased comfort for the patient.

None of the patients with asthenia or Graves's who were placed on lecithin were subjected to the full rest treatment; at first, they are compelled to stay in bed until nine or ten o'clock in the morning, and the remainder of the day is spent out of doors, practically idling. After the gain in weight becomes pronounced, and the nervous phenomena show signs of abatement, they are encouraged to again take up the lighter portions of their duties, and if they still gain, more and more of the ordinary occupations of life are gradually added, though for a time active exercise is always restricted.

A few words on the action of lecithin in exophthalmic goiter. I only cite from a few examples. A patient with the typical symptoms of the malady, who had been through the hands of a number of reputable physicians without benefit, was discharged at the end of three months with entire abatement of the symptoms and large gain in flesh. Another who had lost 69 pounds before she was referred to me, gained 27 pounds in the course of five months

with entire loss of the nervous phenomena. At the end of this time she was subjected to severe mental strain, lost three pounds under it, and showed a slight return of the heightened reflexes and hyperidrosis, but on being again placed on the lecithin these phenomena subsided. Another case of unusual severity is entirely well after a year's treatment, though she still has to avoid over-fatigue to the date this is written.

Though lecithin is a constituent of every cell of the body its action as a medicine is, as yet, not fully understood. As an erythrocyte producer, with *pari passu* increase of the leucocytes, as we have already seen in the earlier portion of this article, it has no equal, iron, manganese, as well as other ordinary tonics falling far behind it. It is evident, however, that it has other and more essential properties than a blood inducer.

We have shown in quite a variety of maladies that afflict the human being, in which there is reason to suspect the presence of a derangement of the functions of one of the internal secretory glands, that lecithin acted as an antihormone to this glandular secretion. This is rather singular, when it is remembered that the active chemical constituent of the product is phosphorus, which, along with iodine, is usually regarded as a stimulant to the secretions, especially of the glands in question.

Now we find the reverse action, the phosphorus nullifying the activity of the thyroid hypersecretion, or better, and to put it differently, we find the phosphorus compound stopping the active nervous symptoms in two maladies, Graves's and catatonia, that we have some reason to believe, is due to a perversion of the internal secretion of the thyroid gland. The most plausible explanation of its action is that it stimulates to greater activity the resistive powers of the tissues themselves, aids in inducing a regenerated blood formation, and increases the phosphorus content of the white corpuscles of the blood.

When the symptoms of nervous derangement is asthenia or Graves's malady have abated, we have found arsenic the best agent to keep up the action of the lecithin, yet the two chemicals are apparently antagonistic in their action. Evidently we have not yet arrived at an unequivocal knowledge of these several agents, and a more widely extended investigation should be made, includ-

ing that of the chemical laboratory, indeed the purport of this article is entirely suggestive, and not intended to be assumed as positive.

THE THYRO-LECITHIN TREATMENT OF CATATONIA.

Even more than thyroidectomy in catatonia this form of treatment is as yet in its early infancy, but the fact that three cases at least have gotten well under it, leads me to believe that there is some future for its more extended use. If it can do no good, it can at least work no harm.

I cite but four cases of the malady that have been subjected to the lecithin treatment combined with the thyroid extract in two grain doses given in alternate weeks. The thyroid extract in small doses apparently acts as an excitant to the bodily metabolism, and its service otherwise can be disregarded.

CASE I.—The first in which it was tried was Miss G. M., æt. 20 years, a well-educated young woman, one of more than the average intellectual ability. She had not passed beyond the first stage of the malady when the treatment was begun. She showed the characteristic motor signs, and from having previously been active and intelligent had grown indolent, anergic, difficult to arouse in the morning, with marked lesion of attention. The thyroid was soft, though about the usual size. P. 92, lacking in tone. There was also slight accentuation of the second aortic and second pulmonary sounds, but no arterio-sclerosis.

The blood examinations were different from any case we have yet had examined, and resembled more closely the hebephrenic than catatonic blood.

February 10, 1907.—Hemoglobin 89 per cent. Leucocytes 11,000. Large monos. 43 per cent. Small monos. 8 per cent. Neutrophiles 46 per cent. Eosinophiles 1 per cent.

February 17.—Lecithin one week. Hemoglobin 90 per cent. Leucocytes 11,200. Large monos. 22 per cent. Small monos. 32 per cent. Neutrophiles 42 per cent. Eosinophiles 3.2 per cent.

February 27.—Thyroid extract. Hemoglobin 90 per cent. Leucocytes 14,500. Small monos. 36 per cent. Large monos. 8.5 per cent. Neutrophiles 54 per cent. Eosinophiles 1 per cent.

May 20.—Small monos. 45.5 per cent. Large monos. 8.1 per cent. Neutrophiles 42 per cent. Eosinophiles 3.5 per cent. Mastzellen 9 per cent.

September 21.—Large monos. 4.8 per cent. Small monos. 19.2 per cent. Neutrophiles 72 per cent. Eosinophiles 3.6 per cent. Mastzellen .4 per cent.

March 20, 1908.—Red cells 4,278,000. White cells 8260. Small lymphocytes 22.6 per cent. Large lymphocytes 1.0 per cent. Transitionals 5.3 per cent. Neutrophiles 65.3 per cent. Eosinophiles 4.1 per cent. Mastzellen 0.5 per cent.

The variations in the differential count is most remarkable, yet some allowance must be made for the several methods of the various men who have made the examinations.

This case has undergone a great variety of alterations. During February, March, and April she was lethargic and catatonic; in May and June excited and erotic. In July and the subsequent months to November, she appeared to be normal; in November there was some slight return of the catatonic symptoms (she had not been given lecithin for several weeks). From November to the present date she has been normal, so far as can be told from her conduct and letters. I cannot positively state that the case is cured, only the characteristic symptoms have entirely abated, and letters show that there is no lowering of the mental acuity, whereas in the ordinary course of events there should be beginning dementia.

CASE II.—G. M. R., a boy of 19 years, was first seen on May 9, 1907. For the previous two months he had been showing alterations of disposition, difficulty in facility of thought, a complete change from his usual active habits to indolence and apathy. There was also great difficulty in getting him out of bed in the morning, and if left alone he would lie there indefinitely. Definite delusions or hallucinations could not be determined, and the boy would reply to questions only in monosyllables, and then after repeated urging. Previous to the beginning of the attack he had stood well at school. The physical examination showed the usual motor signs of catatonia, including emaciation, hyperidrosis, and exalted reflexes. The thyroid gland was about the normal size, but soft, and there was no area of thymic dullness. This boy was treated for six months by hyperalimentation, and alternating weekly thyroid extract with lecithin, and at the end of that period was entirely well, and has continued to remain so.

An examination at the beginning of the treatment showed: Red cells 4,200,000. Leucocytes 11,000. Small lymphocytes 26 per cent. Large lymphocytes 6 per cent. Neutrophiles 68 per cent. Eosinophiles 2 per cent. Mastzellen 0 per cent.

CASE III.—Was a female in the Detention Hospital, with clearly-defined, but well-advanced catatonia, and beginning to dement. Her age was 23 years. The lecithin treatment had absolutely no effect on the progress of the malady.

CASE IV is given in more detail than the others, as the patient was in full control in the hospital, and daily notes and examinations could be made.

CASE IV.—Emma L., single, æt. 20 years, was admitted to the Detention Hospital, June 1, 1907. Diagnosis, catatonia.

Family History.—The parents are of German extraction. The father is living at the age of 63 years, and is in good health. The mother died at the age of 57, of unknown causes. The only known nervous malady in the family was that the grandfather died after a paralytic stroke. L.'s father is a moderate drinker, mainly of beer. Patient has three brothers, and two sisters, all in good health, except that one of the brothers is a heavy drinker. Two of the children are younger than the patient.

Past History.—The birth was normal. The only malady of childhood was measles. L. attended the public schools for five years, and was looked upon as an industrious and intelligent girl. Menstruation began at the age of thirteen, was regular, and not attended by disturbances of the nervous system. The girl has never been addicted to alcohol or other drugs. She has always led a quiet life, keeping house for her father.

Present History.—The first indication of a variation from normal mentality was about four weeks ago. She then began to grow listless and dull. In the morning it was difficult to arouse her, and at a later stage she refused to get out of bed at all, and remained there the entire day, requiring to be fed and neglecting the bowels and bladder. Within a few days she became markedly negative, resisting all attention, and if placed on a chair would remain there the livelong day motionless. On the day preceding her admission to the hospital she became very restless and difficult to control.

On admission, June 1, she was excited, incoherent, loquacious, but the idea-flow was impoverished. Speech was rather slow. Delusions were vague, and hallucinations were not determined.

Examination.—Skull conformation regular, 53 cm. in circumference. Index 79.4. The general condition is good, and the muscles are not flabby. The skin is sallow, but there is no bronzing or eruptions. The eyes are not prominent; the iris is hyper-reactive to light, sympathetic, consensual, and psycho-reactions. Pupils 2 mm. The palate is high-arched.

Pain and tactile sensations are apparently normal. The deep and superficial reflexes are markedly exaggerated. Mechanical muscular excitability is equally exaggerated. Dermographia is well defined. Tremor is present about the small muscles of the face and tongue, but is not marked.

The extremities are cold, clammy, and bluish. There is slight accentuation of the second aortic sound, but otherwise no abnormality in the heart's tones. P. 88; T. 99°. Physical examination of the viscera showed nothing abnormal. The thyroid gland is of normal size, soft in consistency. There is no area of thymic dullness.

No hallucinations could be noticed during the examination, and the delusions are vague and unsystematized. Muscular rigidity is present, though not particularly well-marked. Negativism is present. The urine was negative, except for traces of indican.

The girl was kept under observation for a period of two weeks before

any treatment, other than hyperalimentation and an occasional purge was given. For a week after admission she remained excited, with a good deal of motor restlessness, and occasionally an impulsive outbreak, but for the greater part of the time she was anergic, stuporous, though the depth of this was never so great but that she would respond to simple questions in monosyllables if shaken and the questions repeated over and over again. In no way did the symptoms vary from those of an ordinary mild case of catatonia.

On June 26 the patient was sent to the hospital ward and placed upon alcoholic solution of lecithin, one fluid drachm, t. i. d., alternated with thyroid extract in 2-gr. doses, with increased alimentation.

July 2.—A re-examination to-day showed that the motor symptoms to be about the same as when the girl was admitted to the institution. The deep and superficial reflexes are much exaggerated, and mechanical muscular irritability is equally so. Dermographia is well-marked, is readily elicited, and remains for a number of minutes. There is no cutis anserina. There is little cyanosis about the hands and feet, but excessive perspiration is noticeable.

Some of the members of her family visited her to-day, and after their visit she became much excited, weeping and crying to go home. Later, she talked incoherently to herself. L. takes food well, and sleeps profoundly. Is apparently pleased when the nurse takes her for a walk on the grounds, and takes some interest in watching the other patients and in the music. T. normal to slightly subnormal. P. 96 to 110.

July 9.—Thyroid extract was begun in 2-gr. doses daily, this morning. The girl has been very nervous, as well as excitable, for the past two days, and has had hallucinations of sight. The pulse has also been high, mounting to 128 beats. T. 98.6° to 98.8°. Is inclined to be constipated and the appetite is not so good.

July 12.—Hallucinations are occasionally noted. T. 99°; P. 115; B. P. 130 R. R.

July 14.—The troublesome hallucinations have not been present to-day, and the excitement has abated, but in place she has become quiet, taciturn, and is beginning to neglect the small amount of work that has been given her to do about the ward. She has also begun muttering constantly to herself. Leucocytosis 12,000. Red cells 4,000,000. B. P. 140; P. 100 to 110; T. 99°.

July 14.—Patient was returned to the lecithin solution, given as before. To-day, L. is again restless, easily startled, and when frightened screams loudly and beats her head with the hands. Appetite very poor. T. 99°; P. 112.

July 16.—The girl is to-day talking in a loud voice, screaming, gesticulating, and gritting her teeth together. The motor symptoms are unchanged. Appetite improving and vegetative functions normal. T. 99°; P. 112.

July 20.—L. is to-day much more quiet, and is talking slowly and co-

herently. She told the nurse that she was ashamed of herself for acting so badly during the past few days, and recognizes that her mental condition is not a normal one.

July 21.—To-day the girl is excited, talks incoherently to herself, and constantly picks at the skin of her hands. Thyroid extract, 2 gr. per diem.

July 23.—The general symptoms are unchanged, except that attempts at masturbation are made from time to time.

July 28.—L. has been brighter, is coherent at times, and has resumed her duties about the ward. T. normal; P. 95; B. P. 130; leucocytosis 12,300.

July 29.—Was returned to the lecithin to-day. Is working a little, but without much energy.

August 4.—Continues to be somewhat brighter. Motor symptoms unchanged. There are occasional attempts at masturbation.

August 6.—Thyroid extract, 2 gr. per diem.

August 10.—The girl is now doing much better than at any time since admission. She is brighter, more intelligent, has shown no delusions or hallucinations, and takes considerable interest in her work, as well as in the other patients. The motor symptoms are little changed; perhaps the reflexes are not quite so exalted. The leucocytosis is rising, and varies from 13,000 to 17,000.

August 12.—Lecithin as before. L. speaks sensibly, coherently, and collectively. Appetite ravenous and vegetative functions normal. The extremities are not perspiring so freely. T. 98.8°; P. 80 to 96; B. P. 140; leucocytosis 12,000. An examination of the motor functions showed dermatographia to be marked, reflexes and mechanical muscular excitability considerably above normal. Pupils 2½ mm. Hyper-reactive to light, sympathetic, and psycho-reactions. The second aortic sound is accentuated. There is slight arterio-sclerosis. Muscular rigidity is present at times. There is no negativism.

August 18.—L. has shown considerable mental confusion during the past three days, and is again inclined to sit still and weep, though she now tries to conceal her emotional state from her fellow patients. She is again inapt and indolent, and talks to herself a good deal. P. 90 to 95; T. normal; leucocytosis 12,000.

August 20.—Thyroid extract, 2 gr. per diem. L. has been better to-day, is well-conducted, sensible in her conversation, and is working about the ward assisting her nurse. Is also sewing at some embroidery. Is cheerful, and looks forward to a return to her own home. She maintains a conversation quite well, and the orientation is good, which has not always been the case. Memory for past events fair. Pupils 2½ mm., slightly hyper-reactive. The hands and feet are warm, not perspiring much, and are not cyanotic. Reflexes and muscular excitability abnormally active. No tremor of lips and fingers. No negativism or muscular rigidity. Sleep and appetite normal.

August 26.—There has been no especial change with the patient since

the last note was made. The facial expression is more natural. There has been considerable gain in weight since admission, and especially in the past month.

August 29.—Lecithin as before. L. is bright and lively; now reads a good deal, and takes pride in having her dresses clean and orderly. B. P. 130; leucocytes 10,200; P. 91; T. 98° to 98.6°.

September 2.—L. continues to be cheerful, intelligent, entirely oriented, and the memory for past and present events is excellent. Thyroid extract, 2 gr. per diem.

September 6.—Patient is menstruating for the first time since her admission. The sensorium is clear, the woman is cheerful, neat, and working well, and is acting as assistant to the ward nurse. Appetite, digestion, and sleep are natural. T. 98.6° to 98.8°; P. 90; leucocytosis 9000 to 12,000.

A physical examination showed: Pupils 2½ mm., normally reactive. Reflexes deep and superficial, normal. Extremities warm and dry. Tremor of the tongue and fingers is hardly noticeable. Dermographia present, though not vivid. No mannerisms, no stereotypy, no muscular hyper-tension. Muscular mechanical excitability somewhat above normal.

September 9.—Lecithin t. i. d. The even return to mental health continues. Patient is willing, cheerful, industrious, and is showing herself more and more capable. When not at work she spends most of her time out of doors reading. There is now a steady gain in weight.

September 17.—Thyroid extract, 2 gr. per diem. There is uninterrupted improvement.

September 24.—Lecithin. There has been no return of mental symptoms. Patient continues to be cheerful and industrious, working steadily from 6 a. m. to 4 p. m. The leucocytosis is now diminishing, varying between 7000 and 9000 per cm. Deep and superficial reflexes are not so exalted. There is no tremor. Mechanical muscular excitability is diminishing. Dermographia is less marked, and perspiration has ceased entirely. Neck 33 cm. Thyroid palpable; no noticeable change in its size, but it seems a little firmer. L. now weighs 125 lbs. T. normal; B. P. 125. Is looking rosy and well-nourished. Her general conduct is all that could be desired.

September 24.—Thyroid extract discontinued; is now on lecithin alone. There has been no change in the mental disposition since the last note. Memory is excellent, and she is most industrious. On September 30 was sent home, with orders to report to the hospital at the end of the week.

October 8.—L. reported this afternoon for examination. The members of her family say that the girl has been quite herself, and has shown no sign of disturbed mentality. The patient herself converses intelligently, and sustains a conversation without apparent effort. Weight 130 lbs. Color good. Neck 33 cm. Thyroid palpable, possibly a little firmer to the finger than when she was admitted in June. There is no area of dullness over the site of the thymus gland. Dermographia markedly diminished. The reflexes and muscular mechanical excitability are close to the natural. No hyperidrosis, no muscular tremor.

November 20.—L. has shown no signs of relapsing.

December 27.—L. is still normal, though at home she has had to contend with the brutalities of an intemperate brother.

January 20.—The girl has continued in her normal state, working hard, and attending generally to the duties of a housekeeper.

April 5.—There has been no relapse.

July 20, 1908.—There is no alteration of the mentality.

September 20, 1908.—Patient remains in excellent health.

BLOOD EXAMINATIONS.—EMMA L.

Date.	Red cells.	White cells.	Hema-globin.	Polyns.	Small monos.	Large monos.	Eosin.	Trans.	Mastz.	Blood press. (R. R.)
July 30, 1907.....	3,228,000	12,300	65%	68.0%	26.0%	3.0%	2.0%	.5%	.0%	130
Aug. 1.....	3,696,000	11,200	65	67.5	26.0	2.0	2.5	1.5	.5	135
" 5.....	3,720,000	9,000	70	64.5	27.5	4.0	2.0	2.0	.0	130
" 10.....	4,750,000	8,660	75	70.0	23.5	3.0	3.5	.0	.0	130
" 20.....	5,500,000	9,700	75	72.0	23.0	2.5	2.0	.5	.0	140
" 24.....	5,800,000	9,700	75	70.5	24.0	3.5	1.0	1.0	.0	130
Sept. 3.....	5,700,000	9,000	75	74.0	22.0	2.0	1.0	1.0	.0	130
" 12.....	5,750,000	9,100	80	67.0	28.0	2.0	1.0	2.0	.0	125
" 21.....	5,700,000	7,000	75	64.0	30.0	3.0	2.0	1.0	.0	125
" 30.....	5,700,000	9,000	75	70.0	24.0	3.0	2.0	1.0	.0	125

CONCLUSIONS.

I. That the number of cases thyroidectomized are, to date, insufficient upon which to base conclusions of a definite character.

II. That the results of the histological and chemical examinations have been inconclusive, as to whether or not we have to deal with a perversion of the secretion of the thyroid gland in catatonia.

III. Nevertheless, it is possible, from the symptoms, that in catatonia we have a perversion of the secretion of that organ, and that partial thyroidectomy induces a return to the normal in the secretion of the remaining portion of the gland. The return to the natural state of the reflexes, the decrease of the mechanical muscular irritability, as well as of the dermatographia, the loss of pigmentation, also of the doughy, pasty character of the skin (most noticeable in the prodromal and stage of mutism), and the later return to the normal both of the mental as well as physical state, are at least suggestive that partial ablation of the gland is a factor, and has something to do with the rapid recovery.

IV. It is possible that the secretion of the parathyroid glandules nullifies, in a way unknown at the present time, the activity of the

thyroid hormone, and that the ablation, in part, of the thyroid gland, helps in promoting the function of these minute bodies. After the operation, all the blood supply that formerly went to the entire half of the thyroid body is now diverted to but a small remainder and the supply to the parathyroid glandules must be enormously increased.

V. It would be exceedingly difficult to find eight successive cases of catatonia, that recovered their mental integrity under any previously known treatment, as these eight cases have done. In Case I, the rise and fall of the mental and motor symptoms, as the remaining half of the thyroid hypertrophied and then decreased in volume, is, to say the least, very suggestive that an alteration of the secretion of the thyroid gland is a very material factor in the causation of the symptoms. This clouding of the mental faculties, when the remaining portions of the gland began to hypertrophy, has been noted in several of the other cases.

VI. The partial ablation of the thyroid gland may produce unknown changes in the general metabolism of the entire body, induced, first, by a relatively high leucocytosis following the operation, equally with a withdrawal from the general circulation of a portion of the thyroid hormone that is known to induce destructive metabolism. In all the patients that have had a sufficient time to fully recover, a marked change in the nutrition has supervened (both after the thyroidectomy as well as after the thyro-lecithin treatment), so that within four or five months after the ablation, or the completion of the thyro-lecithin treatment, there has been the enormous gain of from 30 to 50 pounds added to the weight, and this not confined to the adipose tissues but equally noticeable in the muscular system.

VII. It is hardly possible that chance could have favored us in the selection, at random, of eight successive cases of catatonia, for such favorable results.

VIII. The thyro-lecithin treatment is productive of constant results only in the prodromal state. It acts probably by increasing constructive metabolism, but may also act by nullifying the thyroid hormone, just as iodine increases its activity.

IX. Partial thyroidectomy may be of avail in cases of catatonia only before organic changes, such as have been described by

Alzheimer, and more recently by Zalplachta, have begun in the brain tissues.

X. The operation is not free from danger to the life of the patient, unless the utmost care is taken to insure unusually free drainage; also the chances of an infection, or of a broncho-pneumonia, or bronchitis, are always considerable, the low vitality of the patients having to be taken into account. Though the gland in these cases is of approximately normal size, it takes a surgeon of previous experience in the school of exophthalmic goitre to properly perform the operation, and to judge, from the size of the gland, just how much of the organ should be removed to insure effective results.

DISCUSSION.

DR. BRUSH.—I have been very much interested in watching Dr. Berkley's cases at the Reception Hospital. I know more or less of the progress of his cases and of the results of his investigation. Three or four weeks ago we called his attention to a case in our wards which presented katononic symptoms.

As this case will be included in Dr. Berkley's complete paper it is unnecessary to go into details here.

DR. HENRY M. HURD.—Perhaps I ought to say a word as to some work done in Baltimore during the past six months, which has shown that it is not always safe to deal lightly with the thyroid gland. The old-fashioned surgeons used to think the thyroid gland could be easily dispensed with, but it is now pretty evident that the thyroid gland has much to do with metabolism, and it has also been found that the little glands known as the parathyroid glands, which in the old times when the thyroid gland was interfered with probably hypertrophied and took on some of the action of the thyroid gland, are of great importance. These bodies are very minute, about the size of the head of a pin, and an unskillful surgeon might remove them without even knowing it, to the great detriment of the patient. It is found, however, that where the thyroid body is badly diseased, and an operation for its removal is required, that it is of the utmost importance that these parathyroid glands be preserved. It is not possible to disregard them. In some instances where the parathyroid bodies have been removed in an operation for cancer, it has been necessary to transplant one or more parathyroid bodies from another person. It is not every surgeon that has had experience enough to make an operation upon the thyroid gland.

There is also another matter which is extremely important, the necessity of treating all these cases by the open method to give free drainage to the thyroid body after the operation. Unless there is free drainage the patient

may have maniacal excitement as the result of the poisoning of the tissues from the thyroid secretion and a fatal result.

DR. TUTTLE.—I hope the paper will be published very early, and that when it is published the clinical history of each case be added if possible. It seems to me that since dementia præcox includes so much, there is need of a careful description of the sort of cases suitable for operation. Some of us may go home and begin to operate on our cases. As Dr. Berkley says, we cannot do many of them any harm and we may possibly do some good. We do not know what else to do for them. If the advanced cases are not so favorable for operation, we must operate early; but at an early stage one cannot be perfectly certain what the case is. If there is any form of dementia præcox that is recoverable it is the katatonic form. Some cases look like dementia præcox, which we afterward find are really cases of manic-depressive depression. Katalepsy and mutism can appear in that form of mental disease. So that I should want to be certain that I was dealing with cases of dementia præcox before I should feel that we had found a remedy.

We all know that in mental disease the shock of a surgical operation, or anything of that kind, will have surprising results for a short time. I remember an advanced case of general paralysis, who backed up against some steam pipes and got burned. He was quite clear in mind for a short time immediately after the accident. I do not mean to say that the results recorded in this paper were anything like that, but the element of shock or counter irritation must be taken into account. I do hope that the clinical history of these cases will be published.

DR. HENRY M. HURD.—I wish to add that Dr. Berkley, some two months ago, showed me a number of clinical histories of cases which ought to have accompanied this paper, but, unfortunately, he desired them to be so full and accurate for such doubting Thomases as Dr. Tuttle that he did not get them done to insert in his paper.

DR. BRUSH.—Unfortunately some of the clinical histories at Bayview are not as perfect as they might be. The paper will be published in the July number of the "Journal of Insanity." I hope to get from Dr. Berkley as clear medical histories as we can.

I think Dr. Hurd's warning, however, should be taken into consideration. I have seen, in the days when I saw some surgery, some very serious mistakes by people interfering with the thyroid, and the operation ought to be undertaken rather carefully. In our own clinics we have made some unfortunate operations.

DR. MILLER.—I would suggest that all the cases that have been operated upon be included in the report so that we could see the dangers and the results of the operations.

DR. JELLIFFE.—I had wished that Dr. Hurd might have said something about the work that Drs. MacCallum and Voegtlin have been doing at Johns Hopkins with reference to the effects of the action of the parathyroid, more particularly on the metabolism of the calcium content of the body. That the thyroid gland and its related structures—because there is no doubt that the thyroid is a complex body, and has more than one structure included in it—bear some important relations to the muscular tissues of the body is undoubted. We need not go back to the time when the discoveries regarding the lack of the thyroid were first uncovered and the marvelous effects of thyroid therapy in myxedema were brought out, and now that the relations of hyperthyroid activity have been studied more extensively, a host of phenomena have been uncovered, and you all know that distinct hyperthyroidism has accounted for the number of anomalies in muscular activity. The attempt is being made to explain the motor phenomena of paralysis agitans, myoclonus, myokymia and a number of exaggerated muscular activities associated or not with mental symptoms, on the basis of perversion of the function of these related structures. So that it seems to me that the paper which has been presented points to another outlook in this field of hyperthyroid activity. Where we shall come out we do not yet know, but it is certain that a more intimate analysis of thyroid and parathyroid activity is very imperative, especially from the clinical point of view. It strikes me that a new avenue is opened in this particular class of mental reactions associated with marked muscular involvement on the part of the motor functions of the human body.

Just where the difficulties lie it will take years of patient study to reveal. In katatonia, for instance, are we to find the cortical mechanisms badly timed, or mal-adjusted by reason of disturbance of the fronto-cerebellar connections as a result of a thyroid poison; or are we to neglect the central neural part of the mechanism and concentrate our minds on the peripheral muscular end and view the muscular anomalies purely in the light of deficient calcium content in the blood stream, or does the whole truth demand that both features be considered, with others as yet unknown?

A CASE OF CENTRAL NEURITIS WITH AUTOPSY.

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INTRODUCTION.

In 1897 Meyer, in describing various pathological changes in the Betz cells of the motor cortex, reported the findings in a case of melancholia of the involution or senile type, in which the alteration in the Betz cells, known as the axonal reaction, was present.¹ During the following three years, he was able to collect eight cases in which this reaction occurred, and he published these cases, with others found in the literature, under the title of "Parenchymatous systemic degenerations mainly in the central nervous system."² For this rather long and cumbrous title he substituted the name "Central Neuritis."

This condition, which was regarded as terminal, was found to occur in psychoses that were, as a rule, depressive in character at the onset. It occurred at the involution period, as well as in alcoholic-senile states and in alcoholic-phthisical-cachetic states. Banal cachexias and infections appear to have no direct relation to central neuritis, a fact that is verified by the rather rare occurrence of this condition in a great number of autopsies. The association of central neuritis with depressive mental states is striking but unexplained.

¹ Adolf Meyer. Demonstration of various types of changes in the giant cells of the paracentral lobule. *AM. JR. INS.*, Vol. LIV, October, 1897, No. 2.

² Adolf Meyer. Parenchymatous Systemic Degenerations Mainly in the Central Nervous System. *Brain* (Part XCIII, 1901).

The clinical symptoms are described as rather vague, occurring suddenly where no organic lesion was suspected; difficulty in locomotion, increased weakness of co-ordinated movements, at times jactitation of the limbs and rigidity, disorders of the reflexes, together with diarrhea and occasional febrile fluctuations. The mental condition in this terminal state is an anxious, perplexed agitation, delirium or stupor, not unlike a protracted delirium tremens.

The lesions in these described cases are distributed throughout the cortex, cerebellum, cord and spinal ganglia and also in the sympathetic ganglia. In some of the reported cases, peripheral neuritis was also present.

In two cases of polyneuritic delirium reported by Sims, axonal reaction was present in the anterior horn cells of the cord, Clarke's column, and many cranial nerve nuclei, and in one case this reaction was present in the Betz cells of the motor cortex.³

Aside from these cases, nothing has appeared in the literature in regard to this condition. Drs. Southard and Hodgkins⁴ found the axonal reaction generalized in a case of epilepsy, and pointed out the striking reduction of consistence in the brain (encephalomalacia autolytica).

That the condition (central neuritis) can be recognized from its symptoms and established anatomically is no longer in doubt and has been repeatedly demonstrated at the Worcester and Danvers insane hospitals.

The possibility of remissions during the course of this condition was suggested by Meyer and has been since observed.

CLINICAL HISTORY.⁵

E. S. H., æt. 40.

Family History.—Negative, except that father died of cancer.

Personal History.—Early development normal. No peculiarities known. No serious illness. Married æt. 20, and married life was happy until five years ago when husband's infidelity became known to the patient. Three

³ F. Robertson Sims. Anatomical Findings in Two Cases of Korsakoff's Symptom-Complex. Jour. Nervous and Mental Diseases, March, 1905.

⁴ Note on Cell Findings in Soft Brains. E. E. Southard and M. B. Hodgkins. AM. JR. INS., Vol. LXIV, No. 2, 1907.

⁵ We are indebted to Dr. H. M. Swift of the Danvers Insane Hospital for the excellent initial mental and physical examination.

years ago husband brought home a woman from Porto Rico, which event completely upset the patient and she had some sort of a fit which lasted several hours. She was semi-stuporous for several days after this, and her mental trouble dates from this time. She brooded a great deal over the wrongs done her by her husband and gradually a change of disposition was noted. She neglected the children and seemed to lose interest in everything. Her son states that marked depression has been present for one year only. She was restless, walked the floor a great deal, wringing her hands. Delusions of persecution were prominent; she thought that everyone was against her, that her children were trying to kill her and that the neighbors were going to poison her. For two months before admission she became gradually worse. During the day she was inactive, refused to answer questions. At times she was much agitated and showed marked affect of fear. At other times she was sleepless at night. She thought something was going to happen to her children and was violent to her children without cause. Two days before admission she made a feeble attempt at suicide.

She was committed to the Danvers Insane Hospital September 10, 1906, and at time of admission she was somewhat depressed and agitated. She was restless, constantly rubbing her head with her hands and wringing her hands. She had an anxious, worried facial expression. Questions were answered relevantly and her conversation was coherent. She was willing to answer most questions, and was moderately communicative. She talked in a rather low tone and often slowly. During the tests for school knowledge she often asked examiner to stop as it was too much of an effort for her to think. She frequently repeated, "Oh dear me," but would not explain her agitation.

Consciousness and Orientation.—Patient's consciousness was not clouded and she was well oriented for time, place and persons. She had a good grasp upon her surroundings and a fair knowledge of current events.

Intellect.—Probably defective. Patient exhibits a rather scanty fund of information. School knowledge poorly retained. Calculating ability was defective. She was able to perform only the most elementary problems.

Memory.—Good for remote events, except for exact dates. Patient was able to give a consistent account of her life. Children's names and birth-days given correctly. For recent events her memory was fair. Retentive memory good.

Mental Attitude.—One of consistent depression with slight agitation. Spontaneous thought apparently sluggish. There was a suggestion of retardation as shown by some tests. She usually answered after a short pause. She spoke in a low tone and without animation, but not particularly slowly. She was able to count rapidly.

Attention.—Was difficult to obtain. Patient showed difficulty in concentrating her attention for problems, although she was able to count raps on the table when rapidly executed. No *hallucinations* could be demonstrated.

Delusions.—Depressive ideas and vague ideas of persecution were present. She maintained that she felt queer and that the neighbors might have poisoned her. No attempt at systematization. No true *insight* into her condition.

Physical Examination.—Height, 5 feet 4½ inches. Weight, 128 pounds. A fairly well-nourished woman. Complexion pale with lemonish tinge (hemaglobin found to be 50-60 per cent). Brown hair, streaked with gray. Dry scaly areas on inner side of left ankle and higher up on leg three small irregular scars.

Respiratory System.—Diminished breath sounds over the right side of the chest, both anteriorly and posteriorly. Slight dulness on percussion over the right lung posteriorly with increased fremitus.

Circulatory System.—Pulse regular, 70. Radial arteries not thickened. Apex beat is inside mamillary line. No enlargement of the heart.

Abdomen.—Negative.

Urine.—Slight trace of albumen. Specific gravity 1011. Slightly alkaline in reaction. No casts.

Neuromuscular Condition.—Negative.

Reflexes.—Knee-jerks and achilles brisk. Plantars and abdominals present. Forearm reflexes brisk.

Pupils.—Equal, central and regular; react promptly to light and accommodation.

Progress of the Case.—Patient continued much depressed and emotional and was frequently found crying. Soon after admission she complained of great weakness, which she claimed was increasing. She was very inactive and this was probably due to weakness rather than retardation. On one occasion she vomited. She became more apprehensive and feared she would not recover. On September 24, she complained of having numerous loose movements. At this time her temperature began to rise. (See chart.)

October 15. Patient was put to bed because of general weakness. Twice during the night *she had fallen when going to the toilet room*. Once she was faint, and the nurse thought she was unconscious, but the other time she was not unconscious. She *maintained that her legs were too weak to hold her*. She was somewhat apprehensive and consciousness was quite clear. She had a good appetite. Urinary examination at this time negative. Appetite was very good. For a month patient continued to have loose movements day and night, but no pain accompanied them and no mucus or blood was present in the stools. Internal medication gave no relief. Mental condition much improved. She was less depressed and apprehensive and talked in a rational manner.

Blood Examination.—November 6. Reds, 3,757,705; whites, 4380; hemoglobin, 60 per cent.

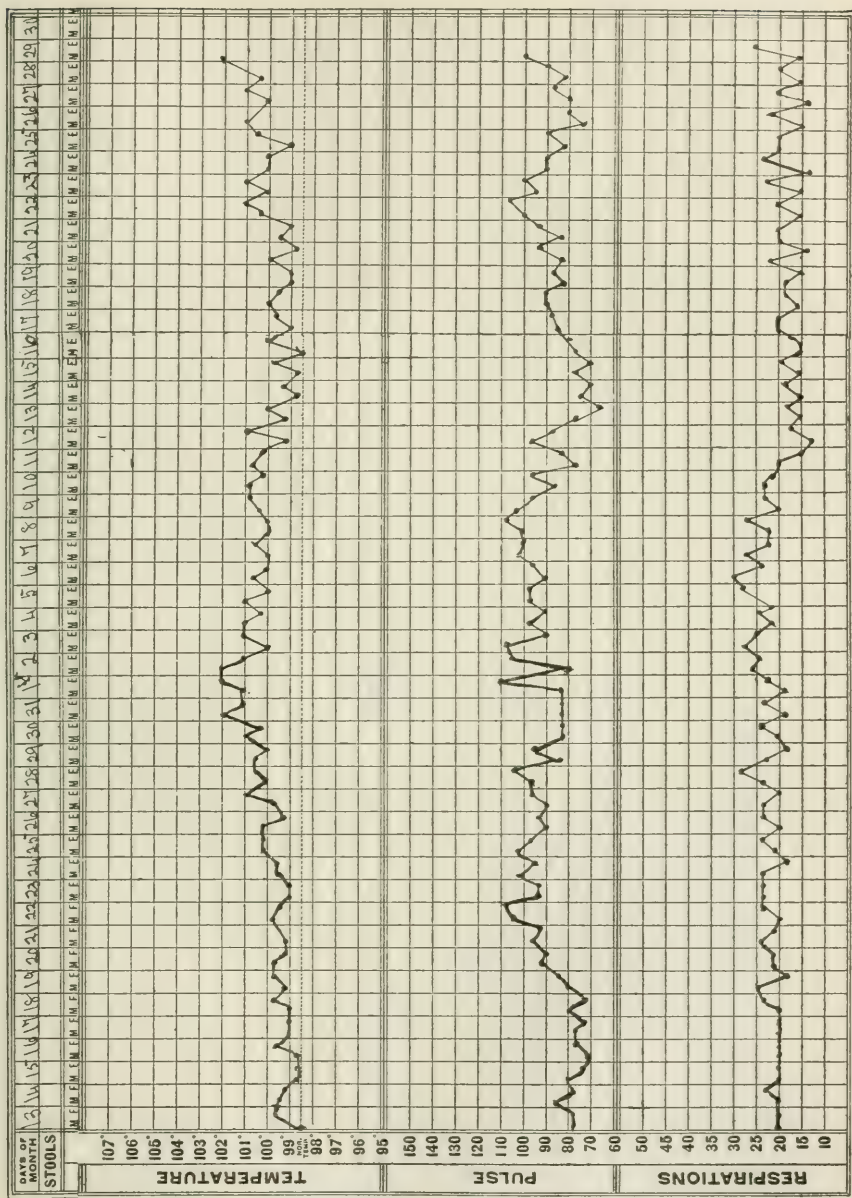
November 17. A great change was noticed in patient. For several nights she had been delirious. Consciousness not altogether clear. Gives the date as December 20. Could not remember names of physicians. At this time a slight but rather constant twitching of the hands, fingers,

No. NAME

E. H.

DATE

October 13-1906. November



lower jaw and toes was present and equal on both sides. Memory good. Gives the exact time of her hospital residence and time in bed. From the clinical symptoms present a diagnosis of "central neuritis" was made on this date.

November 19, 1906. For the past few days patient has been more or less delirious, especially when alone. However, upon questioning she can be brought to consciousness and gives evidence of being well oriented. At first says this is Lawrence, but upon being questioned, changes it to Danvers. Knows approximately the date and recognizes those about her, calling doctors and nurses by name. There has been almost constant fibrillary twitching of the hands, arms and legs for the past few days, jactitory in character, together with some stiffness in the neck muscles, backache and moderate stiffness of the arms and legs. Patient's diarrhea has been improved by warm irrigation and silver nitrate solution ordered for every day with salt solution enemas. Patient shows no marked depression except crying at times. There is no marked anxiety, but evidently some confusion. She has a good appetite and would eat all that was given her. Now takes only liquid diet; does not sleep well. Always more confused and delirious at night. When confused, calls out names of family. No evidence of hallucinations. Patient visited by daughter and friend yesterday. She recognized them, but refused to converse, often saying, however, she was glad to see them. Did not know her people at first. Now somewhat perplexed.

Vision.—Counts fingers at distance of one foot, but makes many mistakes at first.

Reflexes.—Elbow and forearm reflexes, knee-jerks and achilles exaggerated. Tendency to clonus. Considerable atrophy of the muscles of the arm, especially of ulnar muscles and fingers. Marked inco-ordination of hand movements, especially in touching nose. Tremors are increased in these tests. Left hand seems weaker in grasping. No true asternognosis in either hand. Patient's attention difficult to hold. Makes many mistakes, although many things are recognized.

November 20, 1906. To-day patient is somewhat worse, for the most part semi-conscious and very difficult to arouse. There is almost continuous twitching of the hands, feet and face, at times, with lower jaw drooped and lower lip considerably "caved in." Shows some difficulty in speaking. Recognizes physician and is oriented, although when first questioned shows marked confusion and perplexity. The last few days wrinkling of the forehead has been noticed, giving a very perplexed expression, becoming more frequent (omega contraction). Patient has very little to say voluntarily. No stools. Temperature to-day 99.6°, reaching normal in the morning.

November 21, 1906. Patient looks better this morning. Muscular twitching still present. Marked inco-ordination. She is a little brighter mentally and maintains she feels better. However, upon questioning, there seems to be some confusion. Has a good deal of difficulty in pronouncing words

intelligibly. When she becomes agitated over questioning, the face assumes the perplexed expression spoken of before. The patient does not talk voluntarily. Continually moves tongue about in her mouth and tongue takes part in the general muscular twitchings. Right pupil seems a trifle larger than the left.

Q. How do you feel? A. "Well." Q. Where are you now? A. "Dangers" (after much trying to pronounce name). Q. Do you know me? A. "Yes—no, Dr. Cotton." Q. How long have you been here? A. "Two days." Q. How long have you been here? Begins to cry and perplexed expression comes on. Q. Have you any pain? A. "No." Q. Do you feel comfortable? A. "Yes." When asked to shake hands patient takes hand from under the clothes, takes spread to give to physician, moves hands awkwardly about when command is repeated. Says, "I am—I am." Finally grasps physician's hand. In attempting to put finger on her nose shows some inco-ordination, brings finger within one inch of her nose, and holds it there as if she had accomplished the demand. Finally reaches the nose and keeps her hand there with some difficulty, since the twitchings increase very much, even extending to the eyes and all the facial muscles. When asked what she is doing, says, "Nothing," and takes hand down. Able to count fingers at a short distance. Q. Are you afraid of anything? A. "No." Q. Why do you look worried? A. "Oh, I don't know." Asked if she likes to have people talk to her, says, "Yes, I like to have company." *When patient is put on her feet she will collapse unless held.*

November 22, 1906. Patient gradually failing. To-day twitchings more frequent, with all muscles involved except abdominal. Patient is dull, stupid and has great difficulty in grasping questions and answering the same. Tongue twitches almost constantly. At irregular intervals patient's brow contracts and wrinkles, giving the *peculiar perplexed expression*. At these perplexed times, there is no more clouding of consciousness than at other times. Usually in a semi-dreamy state, patient when questioned, shows that she is fairly well oriented as to her surroundings. To-day her speech is hardly intelligible, and she often talks spontaneously in a sort of mutter. Occasionally looks upward at a corner of ceiling and waves hand as if grasping something. This may be a reaction to hallucinations, but the point is difficult to determine. Patient's attention is very difficult to obtain and cannot be held longer than a few minutes. To-day she reacts very sluggishly or not at all to pain stimuli. She scarcely ever winces when pricked. All reflexes much exaggerated. Slight touches bring out knee-jerks, arm and elbow reflexes. No Babinski. Organic reflexes apparently affected. Patient voids urine and feces without knowledge and does not appreciate any untidiness. Temperature, which has been lower the last few days, is higher to-day, reaching 102° in the afternoon. Patient seems much weaker. For three days she has had no diarrhea, apparently as the result of irrigation treatment. Abdomen smaller. Small enemas produced five loose movements during the night.

Electrical Reactions.—Pronounced diminution to Faradic stimulation in all muscles of forearms, hands and lower extremities. Difficult to accurately determine on account of almost continuous twitchings. Twitchings set up by the current and last several seconds afterwards. To galvanism there is also some diminution in all muscles tested, though not as marked as to Faradic. Patient showed to-day great difficulty in swallowing. The food was regurgitated and often choked her when she attempted to swallow. An attempt was made to get patient to try to walk, but she was unable even to stand alone. Absolute loss of co-ordination was shown also in other movements.

Blood Count.—Hemoglobin, 65 per cent; white count, 4840; red count, 3,912,000. Differential white count:

Polymorphonuclear leucocytes	56.5%
Large mononuclear leucocytes.....	26.0
Small mononuclear leucocytes.....	2.5
Transitional forms	15.0
	} 43.5%

November 23, 1906. At first to-day patient seemed much worse. Made no attempt to answer questions and appeared unable to comprehend questions, or demands. Later, however, she answered a few questions, showing that she knew where she was. Unable to recall name of physician, but gave her own name and the name of the hospital. She took her nourishment better. Twitchings not so marked nor so frequent as yesterday. Perplexed expression not so frequent. Patient failed to sleep during the night, but was quiet and did not talk. To-day reacts somewhat to pin pricks, but is mentally so dull that tests are not accurate. Calls two fingers at first three fingers, later two fingers. A few days ago was able to count fingers fairly correctly. Patient complains of no pain. *Blood culture* sterile. All reflexes markedly exaggerated. Temperature 100.2°.

November 24, 1906. Patient seems a little better and takes nourishment. However, in the afternoon was much weaker and unable to swallow. Patient does not talk spontaneously and now cannot answer questions. Often lips move, but no audible sound is heard. Patient keeps eyes fixed usually in one position, but can follow finger when directed. Evidently hears when spoken to, but fails to understand. Twitchings not so frequent or general as at last note. Perplexed expression much less frequent. Neck stiff and head turned to left. Temperature 100° this p. m. Patient had four loose movements last night, one fairly normal movement to-day. Pulse weak and feeble.

November 25, 1906. Patient shows little change this morning. She had two movements during the night. No mucus or blood. Takes nourishment better. Speech very indistinct and thick. She recognizes those about her and asks for some hot drink. Twitchings of hands, fingers, tongue and lips more marked. Patient smiles, or attempts to smile, when told by physician, even when perplexed. Not apprehensive. This morning neck not so stiff. Patient calls out loudly at times, but what she says is unin-

telligible. She reacts to pin pricks, but in general, pain sense is much blunted and retarded. Occasionally takes hold of physician's hand as if frightened and talks indistinctly and fast. Knee-jerks equal and much exaggerated, and a slight tap produces marked reflex. Clonus in both ankles, but only a half-dozen beats and soon exhausted. Plantars are present and no Babinski.

Electrical reaction still diminished to both faradism and galvanism. Marked inco-ordination.

November 26, 1906. Patient slept little last night. Had frequent spells of fright probably in reaction to hallucinations (visual). She screamed, looked very much frightened and fingered imaginary things with her hands. This episode lasted only a few minutes, then she was quiet again. Night nurse states that patient has had such spells ever since she has been in this semi-conscious condition. Patient has slept little during the last three nights. Twitchings this morning more marked and now, aside from the minor jactitations, patient has developed a much coarser form of twitchings; these are almost convulsive in character and come at the same time as perplexed expression in face. The whole arm and head twitch, but not the feet. She is unable to form any words, but apparently makes the attempt. Continuous twitching of mouth and tongue. Great difficulty in swallowing. Patient has developed a beginning bed sore in spite of all care and attempts to prevent it. Voids her urine and feces frequently and involuntarily. Much rigidity of all the muscles this morning. Patient holds on to the bed clothes. All reflexes much exaggerated as formerly. Reacts very slightly to pin pricks, except on her face. Temperature, 101.4° . Slight ptosis of left eyelid.

November 27, 1906. Patient failing rapidly and now practically unconscious. Pays no attention to external impressions. Breathing rapid, pulse rapid and weak. Makes no attempt to articulate. Does not follow directions. Eyes open and staring. Pays no attention to pin pricks. Reflexes brisk, but there is marked rigidity of all the muscles, which accounts for less exaggeration. Ankle clonus only slight. Plantars normal. No Babinski. Head thrown back. Considerable rigidity of the neck. Twitchings almost continuous and at times stronger than at others. Expression blank, except for occasional furrowing of brow and perplexed expression. Temperature, 101.4° .

November 28, 1906. Patient did not rally after last note. She continued to fail. Almost constant twitchings of the extremities and facial muscles, also tongue and lips. Patient could not talk or form words at all. She died at 10 a. m.

SUMMARY OF CLINICAL HISTORY.

Psychosis appearing in a woman of 40, with negative family history and uneventful personal history. Onset of psychosis three years before admission following mental shock caused by husband bringing a strange woman to live at her home. Gradually increasing depression; resulting from

brooding over her wrongs. Vague delusions of persecution. Considerable apprehensiveness, agitation and sleeplessness. Violence towards children and suicidal tendencies. Admitted to Danvers Insane Hospital September 10, 1906.

Here, at first depressed, apprehensive and somewhat agitated. Clear consciousness, orientation and memory perfect. Intellect apparently slightly deteriorated. Sluggish stream of thought and suggestion of psycho-motor retardation. Delusions of persecution and depressive ideas prominent with strong reaction to the same. No insight into her condition.

Physical Examination.—Somewhat anæmic. Otherwise negative. Neurological examination negative.

Soon after admission appearance of general weakness. Became more apprehensive and depressed. One month later developed obstinate diarrhea, loose watery stools and no pain, mucus or blood. Slight rise in temperature. At this time unable to stand and fell on two occasions, once unconscious. Maintained that her legs were unable to hold her. Then one month with improvement of mental condition, but diarrhea resisted all internal medication. November 17 (two months after admission), so weak she was unable to stand. Slight bilateral twitchings, almost constant of arms, hands, fingers, toes and lower jaw. Consciousness somewhat clouded at times. Diarrhea improved and later checked by warm irrigations and nitrate of silver solution. Delirious when left alone, but could be roused by questions. Consciousness at times quite clear. In a few days twitchings were increased, and marked stiffness and rigidity of the muscles appeared with considerable pain when touched. Considerable exaggeration of reflexes and tendency to clonus. Marked atrophy and weakness of muscles of arms and legs. Marked inco-ordination in hand movements and tremor increased by voluntary movements. No astereognosis. Her physical condition became much worse and soon she was unable to speak intelligibly. Lower jaw was dropped and on November 20, occasionally a peculiar wrinkling of the forehead was noticed (omega contraction), showing marked anxiety and perplexity. No voluntary conversation.

Blood Examination.—Hemoglobin, 65 per cent; red, 3,912,000; white, 4840.

Differential Count:

Polymorphonuclear leucocytes	56.5%
Large mononuclear leucocytes.....	26.0
Small mononuclear leucocytes.....	2.5
Transitional forms	15.0
} 43.5%	

Patient continued in a semi-delirious state, with constant twitchings of the muscles of the extremities, apparently visual hallucinations at times. Marked confusion and anxious perplexity as shown by peculiar "omega contraction" of skin of forehead.

Electrical Reactions.—Pronounced diminution to Faradic stimulation in all muscles of forearms, hands and lower extremities, also some diminution to galvanism. Reaction of degeneration not established. Constant twitchings made tests difficult.

Disturbance of cutaneous sensibilities developed later and marked exaggeration of reflexes and ankle clonus. Temperature chart shows various fluctuations, but temperature was above normal. Towards the last, involuntary passages of urine and feces. Inability to talk and swallow. Anxious, perplexed delirium became more profound and associated with vivid hallucinations and fear with occupation delirium.

Patient rallied a little but finally died November 28 of pulmonary thrombosis, eleven days after the appearance of the twitchings and inco-ordination. The terminal condition may be said to have lasted nearly two months and a half, if we date the onset at time of appearance of weakness with diarrhea and tendency to fall. The diagnosis of "central neuritis" was made on November 17, eleven days before death.

If we follow the course of this terminal condition, the first symptom to appear was a general weakness, then diarrhea, tendency to fall and inability to stand. Later, involuntary twitchings of the muscles of the extremities with atrophy, rigidity and pain on passive movements. The peculiar perplexed delirium occurred with the twitchings and became far more profound with progression of the other symptoms. Then inability to talk and swallow. Later, vivid hallucinations and considerable fright and occupation delirium.

AUTOPSY FINDINGS.

The autopsy was performed three hours after death by the writers. The protocol is here presented in full on account of the possible interest which all the organs may attain in a case with such widespread lesions of the nervous system.

White female, age 40. Healed ulceration of left lower leg (varicose). Trivial area of sacral decubitus. Excoriations on inner surface of the right knee. Rigor and lividity absent. Abdomen lax. Pupils: left, 6; right, 4.5 mm. Abdominal fat, slight, orange yellow. Thoracic muscles of the usual appearance.

Peritoneal Cavity.—Parietal and visceral serosa normal. Intestinal vessels not injected. Contents of cavity normal. Omentum retracted, contains a little fat. Diaphragm arches to fifth interspace left; fourth rib right. Mesenteric nodes palpable, of a brownish gray tinge.

Pericardial Cavity.—Normal.

Pleural Cavities.—Show no adhesions.

Heart.—Weight, 285 grm. Sub-epicardial fat in considerable amount. Muscle firm, gray red. Faint fibrous mantling of wall of left ventricle near aortic valve. Faint nodular sclerosis of both coronary arteries.

Measurements.—T. V. 10.5, M. V. 9.0, L. V. 1.5, P. V. 6.0, A. V. 6.5, R. V. 0.3.

Lungs.—Left shows slight post-mortem congestion. General edema. Mural thrombus, $2.5 \times 1.0 \times 0.75$ cm., mixed red and gray, granular and friable, attached to wall of branch of pulmonary artery leading to lower lobe (no infarction). Right shows thrombus, $4.0 \times 1.0 \times 0.75$ cm., of similar character to thrombus of left lung, which has produced infarct $10 \times 8 \times 0.3$ cm. deep upon outer surface of lower lobe.

Bronchi.—Normal. Bronchial lymph nodes small.

Spleen.—Weight, 245 gm. Capsule smooth, tense. Substance firm, cuts smoothly. Small hemorrhages 0.2-0.3 cm. in diameter in pulp. Malpighian bodies visible. Trabeculæ normal.

Gastro-intestinal Tract.—Explored throughout, shows no evidence of lesion beyond an occasional small spot of congestion. Contents, liquid, pale.

Liver.—Weight, 1845 gm. Border a trifle blunter. Substance gray red, cuts smoothly, takes thumbnail easily, shows lobulation very indistinctly and contains miliary and submiliary necroses.

Gall Bladder.—Not remarkable.

Pancreas, Adrenals.—Normal.

Kidneys.—Weight, 405 gm. Strip with difficulty from an uneven surface. Cortex not diminished in width. Markings evident. Centers of pyramids show a moderate fibrosis.

Pelves, Ureters, Bladder.—Not remarkable.

Genitalia.—Normal.

Aorta.—Shows nodular sclerosis of thoracic portion.

Organs of Neck.—Not remarkable.

Head, Scalp, Calvarium, Dura Mater.—Normal. Arachnoidal villi moderately developed.

Pia Mater.—Clear.

Brain.—Weight, 1405 gm. Soft and in large part moist. The consistence of the major part suggests the effect of a combined process of encephalomalacia and edema with the edema superficial and largely confined to the vertex. The left hemisphere is a bit firmer than the right. Both poles and the lower surface as far up as the inferior temporal gyri are firmer than the remainder of the brain. The orbital surfaces and the hippocampal gyri show the maximum consistence, the temporal gyri the minimum consistence in the hemispheres. The lower structures, including cerebellum, are softer than usual. Cerebellum, pons and bulb weight 175 gm.

Spinal Cord.—Consistence decreased. The roots are a trifle softer and perhaps moister than normal. No lesion can be observed in the root ganglia or in the Gasserian or abdominal sympathetic ganglia.

ANATOMICAL DIAGNOSIS.

General encephalo, myelo and neuromalacia; superficial edema of the cerebral tissues at the vertex; slight sacral decubitus; unequal pupils; pulmonary thrombosis in both lower lobes (recent); focal necrosis of the

liver; multiple small hemorrhages in spleen; chronic diffuse nephritis of moderate degree; slight coronary arteriosclerosis; nodular sclerosis of thoracic aorta; slight fibrous endocarditis of left ventricle; healed varicose ulceration of the left leg.

CHEMISTRY.

Two portions of brain substance from the frontal pole and the central region of the left hemisphere were examined chemically by Dr. R. L. Emerson.⁶

Determinations were made of neurokeratin, alcoholic and ethereal extracts and of total phosphoric acid. The frontal portion gave a residue from 10 grm. of 0.17 grm. neurokeratin as against a residue of 0.1 grm. neurokeratin for the central region.

The alcoholic and ethereal extracts gave a residue from 10 grm. of 0.23 grm. for the frontal portion as against 0.31 grm. for the central portion. The frontal sample gave from 11 grm. of 0.16c. figured as P_2O_5 , the central sample gave 0.12c. figured as P_2O_5 .

MICROSCOPIC FINDINGS.

The organs of the trunk and various parts of the nervous system were fixed in Zenker's fluid and stained by the eosin-methylene blue, anilin blue and phosphotungstic acid hematein methods. Various parts of the nervous system were fixed in alcohol and stained by Nissl's method. Similar parts were fixed in formaldehyde and prepared according to Weigert's myelin sheath method and the Marchi method. Preparations were also made according to Cajal's method for fibrils. Frozen sections were stained with Scharlach Roth.

Organs of the Trunk.—The examination of the organs of the trunk served in the main to confirm the gross diagnosis. The heart showed a minor degree of intimal sclerosis of small branches of the coronary arteries. A section from the left ventricle showed a considerable degree of interfascicular fibrosis, as well as several foci in which muscle fibers had been diminished in diameter or totally destroyed. A section from the right ventricle showed far less interfascicular fibrosis and no foci of muscular atrophy. It was also worthy of note that the right ventricle showed far less perinuclear pigmentation of the fibers constituting its walls than did the left ventricle.

Lungs.—Showed in the alveoli considerable number of pigmented phagocytic cells. The thrombus of a pulmonary branch described in the gross, however, had led to no infarction. Microscopic examination by several methods of the pulmonary arteries, showed an extensive sclerosis with deposit of lime salts, which recalls conditions found, as a rule, in the greater circulation. The zone of adhesion between the thrombus and the

⁶ Under a grant from the Proctor fund.

sclerotic wall showed very numerous pigmented cells imbedded in granulation tissue. The bronchi were normal.

Spleen.—Showed throughout the pulp numerous small hemorrhages of a recent character. A number of phagocytic cells can be demonstrated in various parts of the pulp, but phagocytosis cannot be said to be markedly active. There is an increase of fibrous tissue in the pulp. The Malpighian bodies are very generally dotted with mononuclear phagocytic cells which are actively digesting cells of the lymphocytic type. Most of the cells of the Malpighian bodies are small, of even diameter and provided with nuclei approaching the solid type. The Malpighian arterioles show a moderate amount of hyaline change.

Lymph Nodes.—From several sources show a moderate number of large mononuclear cells in the sinuses, but the sinuses themselves are not especially dilated. The cells of the lymphoid tissues of the lymph nodes present a certain difference from those of the Malpighian nodules of the spleen in that the nuclei of the lymphocytes in the lymph node, are rather more vesicular than those of the Malpighian lymphocytes. Moreover, there is a considerable tendency to the occurrence of cells resembling the plasma cells. There is nowhere any appearance suggesting invasion of perilymph-node tissue.

Bone Marrow of Right Femur.—The marrow is more cellular than usual. The capillaries are dilated with blood corpuscles. The cells of the tissue spaces are predominantly mononuclear. The mononuclear cells, as a rule, show large vesicular nuclei. The cytoplasm assumes a variety of shades both blue and red. A number of the nuclei of the mononuclear cells show indentation, with an occasional transition toward the polynuclear form. There is a certain number of cells with pyknotic nuclei about which it is impossible to say whether they are ill-preserved or degenerate. Cells of a frankly polynuclear type occur in about the proportion of one to ten of the mononuclear forms, although there are small foci in which polynuclear leucocytes are more frequent. Cells with large eosinophile granules are comparatively infrequent. They occur in about the proportion of one to twenty-five or more of the mononuclear forms. Many fields may be searched without results for eosinophile cells. The eosinophile cells are apt to be mononuclear or somewhat indented. The giant cells of the marrow are fairly frequent. They present the usual picture of multiple vesicular nuclei pulled out into various amœboid shapes. The cell bodies are rarely provided with prolongations.

Liver.—Microscopic findings confirm the gross diagnosis.

Adrenal.—Not remarkable.

Kidney.—Confirm gross diagnosis.

Intestinal Tract.—Several foci of the intestine showed intensely congested capillaries. These foci are minute and fail to be related with especially marked changes in nerve cells. The most important change found in the intestine, at least from the present point of view consisted in changes of two types found in the nerve cells of Auerbach's plexus. These changes

recall, on the one hand, the edema change as found frequently in the large nerve cells of the central nerve system, and, on the other hand, the axonal reaction of Nissl as found in the central nerve system upon section of the corresponding nerve fibers. We are unable to say definitely what relation these changes bore or could bear to the diarrhea. The second type of change, namely, that which resembles the axonal reaction of the central nervous system, may well be a sign that the lytic agent which has affected the nerve cells of the brain, spinal cord and dorsal root ganglia, has also taken effect in the sympathetic system. If so, this intestinal nerve cell change must be regarded as one of our best evidences that the condition with which we are dealing is a condition of general neuritis and not merely one of central neuritis.

The majority of cells show a reaction resembling the axonal reaction; that is to say, the cell body is rounded; the nucleus is pyknotic, somewhat shrunken and eccentric; and the contents of the cell body are homogeneous. (See Fig. 3, illustrating a change regarded as due to simple edema, and Fig. 4, showing the characteristic change in nerve cells of Auerbach's plexus.)

Numerous mitoses are found in the epithelium in various parts of the small intestine. It might be an attractive hypothesis to relate these mitoses of the epithelium in some ways to the nerve cell changes in the sympathetic system. There are not data enough by which to support this hypothesis.

Central Nervous System.—The examination of the central nervous system, like that of the organs of the trunk, serve, in the main, to confirm the gross diagnosis. We shall limit our description to points which we regard as related to the condition in hand. We relied upon the Nissl method in its original form for detection of the axonal reactions which the clinical symptoms had led us to expect. We examined numerous areas from both sides of the cerebrum, from several regions in both cerebellar hemispheres, and from three levels of the spinal cord by the Nissl method. Co-ordinately with these areas we examined adjacent blocks by the eosin and methylene blue, the anilin blue and the phosphotungstic acid hematein methods after Zenker fixation, as well as adjacent blocks fixed in formalin by the Marchi method for fat and the Weigert method for myelin sheaths. A certain number of sections were stained by the Bielschowsky and Cajal methods, as well as by the Scharlach R. method.

The essential changes of this disease are probably demonstrable by a combination of the results of the Nissl method with those of the Marchi method. Of course, the number of axonal reactions will in most cases fall short of the number of fatty fibers. This disparity in the results of the two methods is without doubt due to the fact that the Marchi method is better capable of demonstrating the changes than is the Nissl method. For the small cells fail to show characteristic axonal reactions under any circumstances.

The most difficult point to determine in such cases is how far post-mortem or agonal alterations are responsible for confusion in the gross diagnosis. Changes of the sort which we must regard as related either with edema or with post-mortem lysis were found in various places, but particularly in sections from the two superior frontal gyri and from the two gyri recti.

Far more common are the axonal reactions. These abounded in all regions in the large cells. The calcarine and hippocampal regions may be mentioned as especially rich therein. An increase of satellite cells with occasional apparent total replacement of nerve cells with cells of the satellite type was found particularly in sections from the two superior frontal gyri.

The white matter in most regions shows a moderate amount of green pigmentation in phagocytic cells of the perivascular sheaths. This pigmentation was slightly more prominent in the motor areas, and could be found in very few vessels of the gyri recti.

A certain disparity in the cell proportions was noted on the two sides of the cerebrum in the motor area. As these changes seem to bear no relation to the disease in question, we shall postpone their consideration to another context. Of importance in the present connection seems to be the fact that the nerve cells show relatively the same proportion of axonal reaction on the two sides.

The Marchi reactions of the various areas are of note in that they suggest certain differences in the severity of the fatty degeneration in various parts. Thus, we have noticed that the superior frontal gyri, the right calcarine and right hippocampal gyri show slight Marchi changes. The right gyrus rectus appears to show considerable more fatty degeneration than does the left. The left leg area shows extensive changes; but these are less marked than those of the right leg. We have noted that the left hippocampal gyrus and the right leg area show the maximal changes found in this case. It seems impossible to correlate these variations with known characters of the lytic process. It must be remembered that except in marked instances the fiber methods for fatty degeneration are for technical reasons more qualitative than quantitative. It is difficult to control the thickness of sections and the degree of penetrability of the osmic acid-Muller mixture.

We have stated above the number of cells showing the axonal reaction will fall short of the number of fatty fibers. This is true if the Nissl method alone is used to demonstrate the changes in the nerve cells. However, the sections stained by the Scharlach R. method, which is fairly accurate for showing fatty pigmentation of the cells, or better, fatty degeneration, exhibits many nerve cells affected, and usually these are smaller cells, which show apparently little or no change by the Nissl method. Hence, there is little disparity between the proportion of degenerated fibers and affected cells. In some respects the Marchi method for fat and the Scharlach method show similar pictures; but fatty pigmentation is demonstrated better in the cells by the latter method, which

method does not stain the degenerated myelin sheaths so well. By the Scharlach method the tissue is hardened in formaline, and does not go through solutions that tend to extract the fat, and for that reason a more accurate picture can be obtained. In the large Betz cells of the motor area, both methods will demonstrate the fatty degeneration. In cells slightly affected, as in Fig. 2, the fatty pigmentation seems to surround the chromatolyzed area, and while in cells where the process of degeneration is further advanced, the whole of the chromatolyzed area is filled with fat. In the smaller cells, however, a great many show a well-advanced type of degeneration; the whole cell is filled with fat, and in some instances the axis cylinder shows the same picture, while a small amount of fatty pigment may be considered normal in cells at certain periods of life, when it is present in the amount shown here, we can well believe that it is pathological.

This process is distributed unevenly throughout the cortex, some areas showing a large majority of cells so affected, while in other regions the process is less marked. Cells in the same section will also show the same variation.

Cells stained by the method of Cajal and Bielshowsky for neurofibrils were not altogether satisfactory, but in a few instances a definite change in the fibrils within the chromatolyzed area were observed.

Spinal Cord.—The great majority of large cells show characteristic axonal reactions by the Nissl method. The Marchi method showing scattered degeneration in all parts.

Cerebellum.—The cerebellum shows few changes by the Nissl method which could be related to a lytic process. Nevertheless, a few Purkinje cells show an approximation to the axonal reaction with, however, a preservation of Nissl bodies. The Marchi reaction shows marked fatty degeneration of a scattered type in the white matter. It seems difficult to deny that some of the fibers related with Purkinje cells must have undergone fatty changes. Further study seems desirable to discover what peculiarity permits the Purkinje cells to resist to all appearances the lytic process.

Peripheral Nervous System.—The nerve roots and nerves examined show a general fatty degeneration of a moderate scattered type. The nerve roots opposite their origin at the spinal cord show the same degree of change which is shown by the adjacent fibers of the cord itself. The root ganglia exhibit a majority of cells which are either quite normal or slightly pigmented. A certain number, however, of the root ganglion cells show axonal reactions of an exquisite and wholly characteristic type. Enumeration shows that about one in fifteen of these cells shows the axonal reaction. The reacting cells occur in small groups as a rule.

BACTERIOLOGY.

Blood culture one week before death proved sterile.

Culture from the *heart's blood at autopsy* was sterile. The *cerebrospinal*

fluid contained *Bacillus coli communis*. A few staphylococcus colonies grew from a plate taken from the left inferior frontal convolution.⁷

SUMMARY AND CONCLUSIONS.

The present case is a fresh example of Adolf Meyer's central neuritis and shows, as did some of Meyer's cases, an involvement of the peripheral and sympathetic nervous system, together with the central nervous system, in a condition of severe and extensive lytic change. These lytic changes are exhibited in characteristic Marchi degenerations of the medullated fibers and in the axonal reaction of Nissl in certain nerve cell types.

These fiber and cell changes are, it is probable, only the evident fraction of a large series of changes of a lytic nature, most of which cannot be demonstrated by present histological methods. Thus the Marchi degenerations invariably surpass in amount the axonal reactions, doubtless because many of the fibers which show fat drops are connected with cells that are too small or too scantily supplied with Nissl bodies to exhibit the axonal reaction of Nissl. As shown by the Scharlach method the small cells have undergone a serious form of degeneration and are filled with fatty pigment.

Another evidence of the universality of these changes is the characteristic reduction of consistence on the part of both the encephalon and the cord. Attention has been called to this alteration of consistence by Southard and Hodgkins. In the case reported by them, the reduction was striking in all parts except an area of sclerosis in one hemisphere. Examination of the tissues by the Marchi and Nissl methods showed that the preserved nerve cells and fibers in the sclerotic area exhibited the same changes as the cells and fibers elsewhere. The disease, therefore, seemed due to some lytic agent differential for nerve elements, possibly an autolytic agent. The present case again illustrates the generalized reduction of consistence of central nerve tissues (general encephalomalacia and myelomalacia), together with some indication of the process in the peripheral elements, the result, perhaps, of a lysis or autolysis yet more general (neuromalacia).

⁷ We are obliged to Dr. F. P. Gay, bacteriologist to the Danvers Insane Hospital, for these findings and several suggestions.

The question may well arise whether the cells or the fibers are the first to be involved in the lysis. Despite the extent and severity of the Marchi degenerations in the medullated fibers, it is nevertheless probable that the lysis primarily affects the nervous elements rather than the myelin investments. This point is borne out by the extensive changes, simulating the axonal reaction, in the nerve cells of Auerbach's plexus in the present case. Reasoning from this finding to the interpretation of central nervous findings, it seems possible to argue that the hypothetical lytic agent attacks elements largely proteid in character. The Cajal fibril preparations, so far as decisive, are consistent with this hypothesis. The nerve cells, stained with Scharlach Roth, show no accumulations of fat within the central or chromatolyzed area in the first stages of degeneration, but later as degeneration proceeds, the whole cell is filled with fatty pigment.

When such cytolytic changes prove to be so extensive as in the present case, involving various groups of axis-cylinders and eventually various nerve cell bodies and nuclei, as well as myelin sheaths in many regions, it may well be that the change here particularized is only an expression of a still more general lysis or autolysis which will be best attacked along chemical lines.

DISCUSSION.

DR. HUTCHINGS.—With reference to the other paper on central neuritis by Dr. Somers, of Ogdensburg, he has been detained and so is unable to be present. I have his paper with me, but as the meeting is already behind, I am afraid it will be read by title, but if Dr. Cotton would like to see his paper, I shall be glad to show it to him.

We have had a number of these cases at Ogdensburg. Some of them developed in the institution, and some of them had been admitted in rather advanced stages of the disease.

I recall one man who was brought to us in this condition of muscular tension, so that he had to be brought on a cot on the train. Our clinical observations are about in the line with the cases described in the paper and do not require repetition. I think that the disease once seen is easily recognized, and is probably rather a frequent terminal condition in the insane.

DR. A. W. HURD.—Dr. Betts, of the laboratory at the Buffalo State Hospital, has a series of studies of twelve cases with central neuritis changes. I am sorry that the notes of these cases were not ready in time for this meeting. A curious fact, which I think worthy of mention in connection

with our twelve cases, is that four of the cases were associated with malignant-tumor cachexia, three of them gastric carcinoma and one a large myxo-sarcoma of the pelvis. So large a proportion is a striking coincidence, and may have some causal relation as well.

DR. MEYER.— I should like to express my appreciation of the very careful study of the cases just read by Dr. Cotton, and especially the decided promotion in the knowledge of the condition that is brought in through both his histological studies and the bacteriological studies on which Dr. Southard reported. It would seem that Dr. Hurd's experience, and the experience of Dr. Betts that these conditions are apt to occur in carcinomatous individuals and individuals who would otherwise be inclined to cachexia, would suggest a distinct relation to cachectic conditions. The intestinal disturbance and febrile fluctuations after all may be only the expression of a cachectic terminal condition. What the rôle of the colon bacillus is, whether it is only a terminal factor, which also occurs outside of the central neuritis, as Dr. Southard has conclusively shown, and whether it has not already something to do with the central neuritis, that is not settled as yet. What we have to do in future studies of such cases will be to give spinal punctures and bacteriological examination and a bacteriological investigation of the brain along the line that Dr. Southard has followed.

It is a striking thing that this condition should vary in its distribution. At Ogdensburg there occurred quite a number of cases. At Worcester I have seen altogether fourteen cases, and on Ward's Island, only chance observations. Why that is, I do not know as yet, but it certainly is a very peculiar thing. It may be that it is partly defective observation, but in the wards of the institute on Ward's Island there has only been one suspected case, unfortunately without autopsy.

The condition is certainly very easily overlooked by those who do not pay special attention to it. The first Worcester case was not diagnosed, but when once the picture of that peculiar twitching and rigidity is fixed, it is an easy thing to notice it.

DESCRIPTION OF PLATES.

FIG. 1.—Betz cell from motor cortex (after Adolf Meyer), showing typical axonal reaction by Nissl method. Note the dislocation of the nucleus, and homogeneous degeneration of center of cell and of part of the apical process; Nissl bodies almost entirely destroyed. From a case of central neuritis, reported by Dr. Meyer, and reproduced by his kind permission.

FIG. 2.—Betz cell from motor cortex, showing axonal reaction, stained with Scharlach R., and counterstained by hematoxylin. Fat stained red, and surrounds chromatolyzed area. As degeneration advances, the fatty substance encroaches on center of the area until finally it fills the entire cell.

FIG. 3.—Similar cell stained with osmic acid and counterstained with saffronin. Fatty pigment stained black. The central portion shows no fat.

FIGS. 1, 2, 3, drawn with No. 4 ocular and 1/12 oil immersion.

FIG. 4.—Photomicrograph of the nerve cell characteristically found in Auerbach's plexus in our case of central neuritis. $\times 1000$. The cell body is almost homogeneous and stains moderately deeply. The nucleus is shrunken pyknotic and eccentrically set. The adjacent non-nervous cells and the tissue at large exhibit no striking alterations, and fail to suggest general lysis. The appearances in the nerve cell suggest those found in central nerve cells when the axones have been cut or otherwise destroyed (the axonal reaction of Nissl).

FIG. 5.—Photomicrograph of nerve cell from Auerbach's plexus. $\times 1000$. To illustrate the effect of *simple edema*. The central oval space is partially filled with a large nerve cell with ragged edges and a vague spongy cell-body. Note that the nucleus is vesicular and preserves a central position. There is a somewhat wide light zone about the nucleus, recalling the appearances described by Hoch for edematous cells of the central nervous system.

We are indebted to Mrs. Henry A. Cotton for the drawings of Figs. 2 and 3.

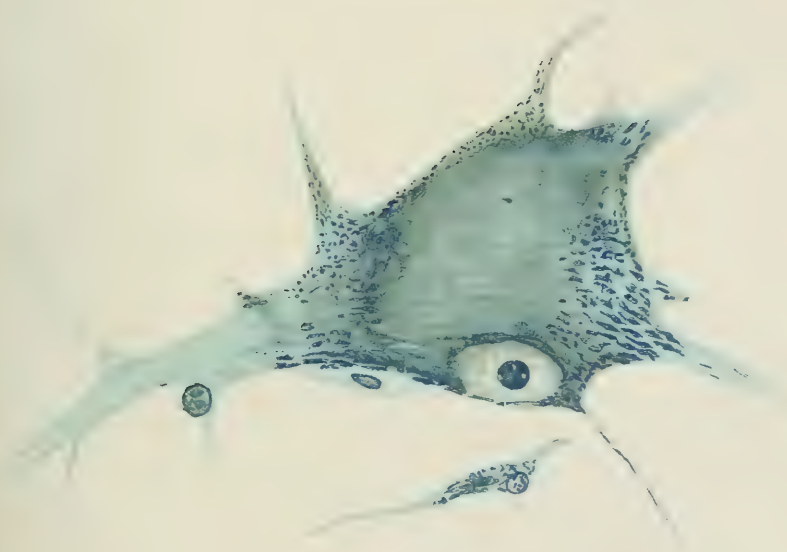


FIG. 1.

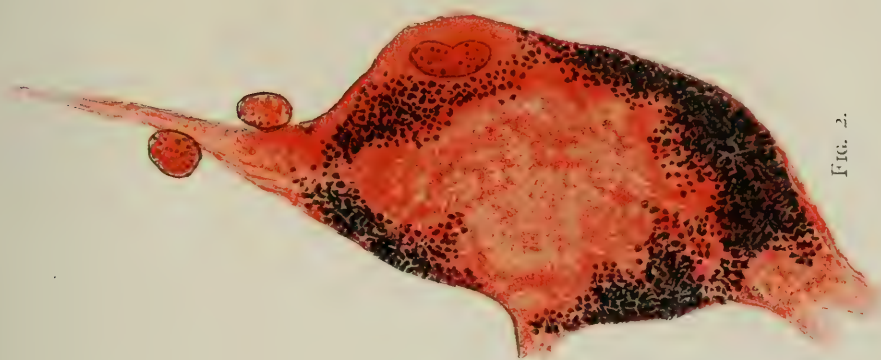


FIG. 2.

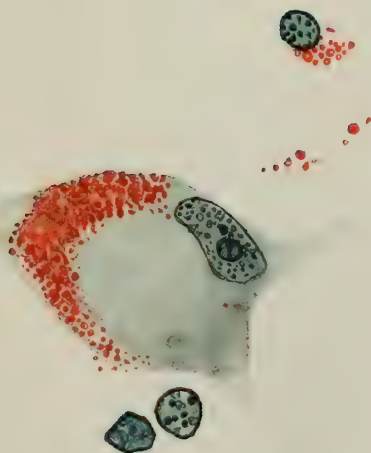


FIG. 3.

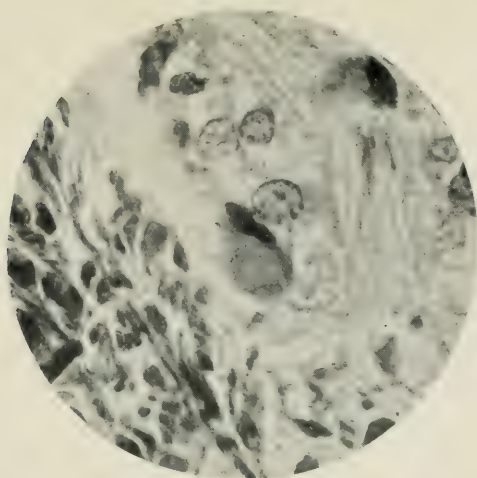


FIG. 4.

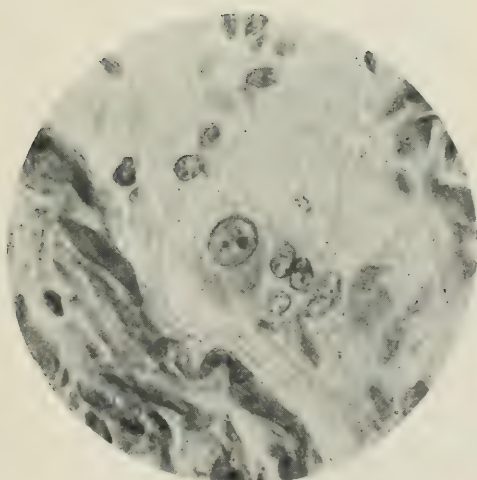


FIG. 5.

THE IMBECILE WITH CRIMINAL INSTINCTS.

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In this paper, I shall briefly consider the class of imbeciles who as a part of their life history present certain persistent tendencies or repeated acts of a criminal nature. I use the term "imbecile" advisedly as an adequate synonym for the many different expressions used to describe various degrees of lesser mental defect, resulting from causes operating before birth or in early childhood, as contrasted with mental impairment or disease developed later in the life of the individual, like dementia præcox, epilepsy, etc. Cases of actual idiocy are also excluded from this discussion.

The term imbecility was formerly applied only to a class of persons presenting simple, obvious intellectual short-comings. The field of mental defect has been gradually extended and widened so that the time-honored definitions and classifications have become incomplete and obsolete. To-day institutions for defectives are often expected to receive patients where the intellectual defect is apparently only moderate, and the principal reason for institution treatment is the failure to harmonize with the environment, as shown by low tastes and associates. In other cases, the prominent symptoms are general incorrigibility, purposeless and needless lying, a quarrelsome disposition, a tendency to petty stealing, a propensity for setting fires, aimless destruction of property, a tendency to run away and lead a life of vagrancy, sexual precocity or perversions—these may be the symptoms which impress the parent or the physician.

The recognition and understanding of these and other less obvious phases of defect are largely due to the correlation of the results of the modern scientific study of normal psychology, pedagogy, degeneracy, criminology and sociology.

A brief review of the ordinary phenomena and symptoms of imbecility is necessary for the proper interpretation of the cases to be described. From a biological standpoint the imbecile is an inferior human being. If the mental defect is due to direct heredity or to developmental abnormalities of the central nervous system, having their genesis in the ovule or in foetal life, the various anatomical, physiological and psychical stigmata of degeneracy are usually present. Indeed, in no other class of human beings are these various stigmata found so constantly, so frequently and so well-marked as in the congenital imbecile. If the mental defect is caused by traumatism, or acute local disease, or other causes operating at birth or soon after birth, the physical stigmata of degeneracy are often absent.

Some of the physical evidences of mental defect are as follows: abnormalities in the size and shape of the skull and cranium; in the size, shape and weight of the brain; variations in the size, shape and relative position of the ears; abnormalities in the form, situation, and structure of the teeth; protruding lower jaw; congenital deformities of the hard palate; pallor of the skin; scanty beard, etc.

Imbeciles of all grades exhibit in varying degrees certain well-marked mental characteristics. In mere memory exercises they may excel. They have weak will-power. The power of judgment is defective and uncertain, and often determined by chance ideas, not by the outcome of the past experience. Thought is scanty, limited mainly to daily experiences. They are unable to grasp and utilize the experiences of life.

Pronounced backwardness in ordinary school studies is, of course, a constant feature of the uncomplicated cases. At the end of his school life, at the age of 15 or 16 years, the imbecile may be able to read in the the third reader, to do simple addition and subtraction, and easy multiplication. Division is not often achieved.

Imbeciles are childish even in adult life. They make friends quickly and are cheerful and voluble. They are boastful, ungenerous, ungrateful. Notwithstanding their stupidity, they are cunning in attaining their own ends. They seem to have but little sympathy with distress or suffering. They are often cruel, espe-

cially to small children or weaker persons. They seem to take special delight in stirring up trouble and are often fond of tale-bearing.

They are vain in dress and love bright and gaudy colors. They like to be well-dressed, and are indifferent to cleanliness of body.

In actions and conversation their own personality always comes into prominence. They manifest unbounded egotism, leading to marked selfishness. Their whole life revolves around their own personal well-being and the possession of things desired.

They show little real affection for their relatives. Their affections are superficial and easily transferred. The mothers say, "They look at what I bring in my hands, and not in my face." Their letters consist mostly of a catalogue of senseless and useless things desired.

They are prone to lie without reason, and often lie unhesitatingly when truth would be to their own interest. They are inclined to steal.

They are morally insensible. As a rule, they are able to carefully differentiate in the abstract between what is right and what is wrong as applied to their personal environment, but in practice their ability to make these distinctions bears no relation to their actions and conduct.

They seldom show embarrassment or shame when detected in wrong-doing. I have never known an imbecile to exhibit traits of remorse. Correction or punishment is of little effect.

They revel in mawkish sentiment. They are susceptible to the emotional phase of religious expression. They are very apt to choose intimate companions very much younger than themselves, or persons very much beneath them socially or below them in the scale of intelligence. They are generally cowardly in the presence of actual physical danger. They are very susceptible to suggestion and are easily led.

They show marked physical insensibility. Galton says, "To the imbecile pain comes as a welcome surprise."

Few imbeciles have been seen to blush. They show an early craving for tobacco and alcohol. They are proverbially lazy and fond of idleness. They seem incapable of forethought.

Imbeciles of both sexes usually show active sexual propensities and perversions at an early age.

There are two traits common to all imbeciles with few exceptions. One is that they will cheerfully risk severe punishment for the sake of some slight gain which appeals to their personal desires. The other is that they seem unable to apply themselves continuously in any one direction. The imbecile often becomes skilled in some one line, perhaps in some branch of a mechanical trade, but unless under the closest supervision, he will not apply himself to the work which he is perfectly capable of doing well.

The above generalizations apply to a very large number of the imbecile class. Many of these symptoms and tendencies may be appreciably modified or suppressed by suitable environment and training. The expression of these tendencies is varied according to sex, age, state of physical vigor, opportunity, etc.

The cases to be reported were selected from the 1236 patients now in the Massachusetts School for the Feeble-minded. They include various degrees and types of defect, from cases bordering on actual idiocy to so-called "borderline" cases, where the mental impairment is slight compared with the moral and social deficiencies. Some of these cases now in adult life have been in the school continuously since early childhood. Other cases at large in the community until the time of puberty were then sentenced to the Reform School by the criminal court and thence transferred to this school. Others were referred to the school from the community without an actual criminal court record.

In many cases repeated acts of a criminal nature have been committed in the community. In other cases the persistent criminal tendencies have been expressed only as modified by institution conditions, but I have no hesitancy in classifying these "criminals who have actually committed no crime" in this group.

The tendency to promiscuous and precocious sexual vice, common to all types and degrees of imbecility, is considered only as incidental and corroborative evidence.

CASE I.—F. M., female.

Age when admitted 18 years. Personal history very meagre and nothing known of ancestry. It is known that this patient has been a prisoner at the State Industrial School, at Sherborn prison, and in various jails and houses of correction. She was a State ward and was placed out in families several times, but always absconded after the theft of money and other articles. The experienced court officer who brought her to the school

stated that in her language and in the freedom with which she discussed her various escapades, she was "the most brazen and depraved human being he had ever seen." She gloried in her misdeeds and unblushingly related stories of her various adventures. At times she shamelessly revealed her sexual propensities. She stole everything she could get her hands on. She was wantonly destructive of property. Even attempted violence toward her attendants. Showed ability as an organizer and as an inciter of rebellion and mischief.

Degenerative stigmata: Supra-orbital ridges prominent. Zygoma prominent.

Present age 22 years. Reads in 4th reader. Is fond of books and magazines. Expresses herself fluently and well. Adds and subtracts slowly to 20. Cannot multiply 4×5 . No division. Patient is childish in her ideas and tastes. Conceited and egotistical. Sly and cunning in small things, but shows lack of caution in concealing her serious lapses in conduct. Kind to children. At several periods has shown a marked infatuation for patients much her inferior mentally, and who were, in fact, of a very low grade of mentality. She has never chosen as her particular chums, patients of her own grade. Easily influenced by people of whom she is fond, and is scrupulously loyal to her special chums. She is selfish and ungrateful. She is always in sympathy with any evidences of rebellion or insubordination. At first was quite slovenly and careless in her work. Of late, she has become more particular, and to-day, with close supervision, is quite the equal of the average seamstress. Without supervision the quality of her work at once becomes poor.

CASE II.—J. C., female.

Age at admission 17 years. Paternal grandfather and grandmother both insane. Father and mother not up to the standard mentally. Mother had convulsions to age of six years. Patient dishonest, untruthful, destructive. Could not apply herself in school work. Liked to play with younger children. Had convulsions in early childhood. Wet bed until 14 years old. Showed no remorse when detected in theft. Would tell lies without any apparent reason. Was at "George Junior Republic" for a while. Says she was "in jail" there almost continuously for lying, stealing and general incorrigibility.

Degenerative stigmata: High, perpendicular forehead. Receding chin. Small mouth. Ears badly made, with adherent lobules. Teeth badly placed. Face markedly asymmetrical.

Can read in 4th reader. Likes to read story-books and magazines. Penmanship good. Uses language intelligently. Adds and subtracts by hundreds, and multiplies by two or three figures. No division. Patient is childish, deceitful, boastful. Likes to tell stories of her connection with men and boys, although her family say these stories have no foundation in fact. Likes to change from one thing to another, but does fairly good work under supervision. Likes to be well-dressed, but has to be forced

to wash neck and ears. Forms violent attachments towards other patients. Chooses very defective patients for her chums. Indolent, untidy. No affection for relatives. Gloats over her misdeeds. No shame or remorse. Shows absence of motive by stealing things for which she has no use.

CASE III.—F. S., female.

Age when admitted 16 years. Colored. Committed to State Industrial School when 14 for stubbornness and violence towards brothers and sisters. In a fit of jealousy tried to kill baby brother. Mother was ugly tempered and quarrelsome. Girl wet bed until 16 years old. Had attacks of irritability and violence during which she walked about aimlessly. Always incorrigible. Ordered out of public school at age of 12.

Degenerative stigmata: Prominent zygoma. Face asymmetrical. Ears gross, with adherent lobules, and exaggerated details.

Present age 22. Reads easily in 4th reader. Likes to read newspapers, books, and magazines. Slow of speech, but expresses herself well. Hand-writing admirable. In number work can add slowly to ten, but not above that. Can tell time by five-minute intervals. Patient is vain, fond of dress, and of ornament. Selfish. Exceedingly proud of whatever she does herself. Disobliging, stubborn, often sulky and rebellious. Shows no affection for relatives. Has attacked other patients and attendants in fits of temper, brought on by failure to get her own way. Can do beautiful laundry and other work, but will not do it unless very closely supervised. Sexual pervert. Her indecent actions with other patients are carried on regardless of the presence of others.

CASE IV.—M. B., female.

Age at admission 15. Mother intemperate. Father in prison on charge of assault and sexual connection with this girl and an older sister. Persistent thief and liar. Sexually precocious.

Degenerative stigmata: Deep orbit. Face asymmetrical. Ears asymmetrical, with adherent lobules. Palate high-vaulted. Teeth badly placed.

Present age 17. Reads in 3d reader. Likes to read story-books. Uses language expressively and fluently. Adds and subtracts sums in three figures, and multiplies by two or three figures. No division. Can tell time by five-minute intervals. This patient is selfish, conceited, egotistic, indolent. Lies habitually with no motive. Sly and cunning in attaining her own ends. Selfish and grasping. Very ungrateful in every way. Has been taught to do good work under supervision. Will not work if not watched. Deceitful, unreliable. Silly and childish in her behavior and actions. No modesty. Steals things for which she has no use. An inciter of mischief and insubordination. Loves to talk of crimes and criminals. Referred to school by criminal court after persistent habits of thieving, etc.

CASE V.—K. N., male.

Age when admitted 11. No family history. No personal history previous to admission.

Degenerative stigmata: Bushy eyebrows, meet in center. Heavy supra-orbital ridges. Deep orbits. Ears crinkled and dissimilar in shape and position. Face asymmetrical. Palate high-arched. Very deaf.

Present age 21. This patient was in school classes from the time of his admission until he was 18 years old. He is now able to read fairly well in 3d reader. Reads newspapers and magazines intelligently. Has a good vocabulary, and uses language understandingly. Can add numbers to 10 accurately, but cannot subtract these numbers. Cannot subtract or multiply. Patient is vain and boastful. Excels in athletics and likes to exploit his athletic prowess. He is contemptuous in his comparisons of his own doings with those of his companions. Very egotistical. Profane and obscene. Lies unblushingly in securing his own desires. A cruel practical joker. Is wantonly cruel to smaller boys and to his associates. Steals anything he may desire. Shows good intelligence in many directions. Absolute disregard for the rights of others. Greedily reads the newspaper accounts of crime and criminals and boasts of the crimes he would commit against property and persons if he were at large. Is an inciter of mischief. Industrious and capable in all forms of ordinary work under close supervision.

CASE VI.—C. X., female.

Age when admitted 16 years. Was abandoned by parents at an early age. Says mother was intemperate. Patient had an illegitimate child when she was 14 years old. Committed by criminal court to State Industrial School for theft and incorrigibility.

Degenerative stigmata: Very high cheek bones. Deep orbits. Face markedly asymmetrical. Ears asymmetrical, with adherent lobules.

Present age 24. Reads well in 3d reader. Good command of language. Adds and subtracts in hundreds; multiplies numbers of two figures. No division. This patient can do first-class table-waiting and other forms of domestic work when closely supervised. If not supervised does very poor work. Has keen sexual propensities. Forms violent friendships for girls much less intelligent. Chatters and giggles endlessly in a simple way. Very deep and cunning in carrying out her own schemes. Is tyrannical to weaker people. Cruel to animals. Harsh to young children. Very neat in dress and person. Very vain, ungrateful, selfish. Lies unblushingly. Will run the risk of losing some much-desired pleasure for some small gain. Never shows signs of remorse for wrong-doing. Skims through the paper each day for accounts of crimes and murders. Her general behavior is that of a child of 11 or 12.

CASE VII.—N. C., female.

Age when admitted 20. Father intemperate; mother epileptic. As a small child, patient was untidy, played with children younger than herself, was cruel to animals. When 13 years of age was committed to State Industrial School for fornication and assault. Had been incorrigible previously.

Degenerative stigmata: Ears large and gross, with adherent lobules. Astigmatism. Prominent supra-orbital ridges. Deep orbits, prominent zygoma. Face asymmetrical.

Present age 27. Reads well in 4th reader; handwriting legible; adds and subtracts slowly to 20. No multiplication or division. Can tell time by five-minute intervals. Patient is loud and assertive in manner. Always puts herself forward. Has a great opinion of her own ability. Sly and cunning. Fond of dress and jewelry. Domineering and overbearing towards others. Shows no affection towards relatives. Quick tempered and violent at slight provocation. Can do good work but will not stick to it unless closely supervised. Masturbates. Sexually perverted. "Over-sexed." Becomes sexually excited when men are around. In the institution environment these propensities are usually kept under control, with occasional outbreaks of temper and sexual disturbance. She unwillingly does under supervision the work of a rather inefficient domestic.

CASE VIII.—X. E., male.

Age at admission 16. Colored. Committed here at instance of criminal court. Has record of having been before the court repeatedly for incorrigibility, destructiveness, stealing of money, etc. Rachitic and undersized.

Degenerative stigmata: Receding forehead. Prominent supra-orbital ridges. Prominent zygoma. Ears small, dissimilar and with indistinct details.

Present age 21. Patient reads well in 4th reader. Enjoys reading magazines, etc. Handwriting is admirable. Adds correctly to 20, but is uncertain in adding numbers above 20. No subtraction, multiplication or division. This patient is a vain, bombastic egotist. Has a great opinion of everything he has or does. Is neat and tidy in dress. Sly and cunning. Lies without hesitation. Steals. He is a trouble-maker and inciter of mischief. Polite and courteous in his manner and use of language. Has learned to do excellent work as a house painter, but if not closely supervised is very careless and slovenly about his work. Will not work continuously without supervision.

CASE IX.—S. U., female.

Age when admitted 17. Father intemperate; has prison record. Patient illegitimate, although father still lives with mother of girl. Neither father nor mother can read or write. At age of 14 patient was committed to State Industrial School for theft and incorrigibility. In court, she testified that the father had committed incest with her, and accused the mother of venally using her for lewd practices. She was placed out from the Industrial School repeatedly, but always with the history of sexual irregularities and theft at each place.

Degenerative stigmata: Has deep orbits, prominent zygoma, ears asymmetrical and poorly proportioned with adherent lobules.

Present age 33. Can read in 3d reader. Reads simple story-books, but shows poor understanding of what she reads. Cannot spell. Uses language intelligently. In number work, can add a little under ten; no subtraction or multiplication. Can tell time by five-minute intervals. Patient is childish, selfish, disobliging. Fond of dress but careless about her personal cleanliness. Fond of music and dancing. Sly and cunning. Is an habitual liar and thief. Is inclined to be stubborn and sulky. Can do beautiful laundry work if closely supervised, but if supervision is withdrawn, does very poor work. Chooses younger and less intelligent companions.

CASE X.—K. I., male.

Age when admitted 7 years. No family history. Illegitimate. When admitted could not read nor write. Wet bed. Mischievous and sly.

Degenerative stigmata: Skull asymmetrical. Forehead lined with heavy transverse wrinkles. Face asymmetrical. Ears show adherent lobules.

Was in school continuously from time of admission until 18 years old. Now 32 years old. Is an omnivorous reader. Reads newspapers, magazines, books and literature of all kinds. Reads scientific reports, agricultural hand-books, etc. Has not a very clear appreciation of what he reads. Expresses himself well. Can add, subtract, and multiply up to 100. Can divide mentally with an easy divisor. Has a vast fund of miscellaneous information. Has a good memory for facts and events, and is especially good at remembering the exact dates of important events at the school in his time. He is an inveterate liar. In an apparently innocent way tells malicious falsehoods which he knows will make trouble. He is boastful and likes to be prominent. He loves to stir up trouble and mischief. Will tell a new patient that he heard the doctor say that the boy's father is dead, etc. He has been detected in perverted sexual actions with other patients. Occasionally runs away and leads a vagrant life for a week or ten days, when he returns to the school of his own accord. He is never in sympathy with the officers who have him in charge. Once attacked an attendant with a knife. Urges other patients to attack officers. Is always sly and cunning in his mischief-making, and always seems prejudiced against the constituted authorities as a matter of general principle.

CASE XI.—F. Q., female.

Age when admitted 16 years. No bad heredity. Unhappy home conditions. Patient always high-tempered, jealous and hard to get on with. Always desirous of attracting attention. Untrustworthy. Lied about everything. An inveterate thief. Stole money and small articles repeatedly. When accused, lied glibly, and when detected in falsehood or theft showed no signs of sorrow or shame. Would repeat theft at next opportunity. Cruel to little children. Was precocious sexually and had no reserve about exposing her person or in her language or behavior with men or boys.

Degenerative stigmata: Face asymmetrical. Ears asymmetrical in shape and size. Adherent lobules.

Age now 17. Reads in 4th reader. Fond of novels, magazines, etc. Handwriting good. Uses language intelligently. Adds and subtracts slowly to 20 only. No multiplication or division. Patient shown about the same characteristics as noted at time of admission. She lies and is deceitful. Fond of dress, boastful and indolent. Will do good work if closely supervised, but if not supervised is very careless.

CASE XII.—N. M., female.

Age when admitted 18 years. Father intemperate. Mother 48 when patient was born. Patient committed from State Industrial School. Had court record of fornication, street-walking and repeated thefts. Had been repeatedly placed out from the Industrial School with the invariable history of promiscuous sexual intercourse, frequent running away, and several arrests for street-walking. Was a chronic thief, often stealing things for which she had no use.

Degenerative stigmata: Prominent supra-orbital ridges. Prominent zygoma. Deep orbits. Prominent chin. Good ears, but with adherent lobules. Face asymmetrical.

Present age 24. Reads easily in 3d reader. Fond of reading and likes magazines and story-books. Uses language easily and well. Can add and subtract in hundreds. No multiplication or division. Patient is childish and easily led. Noisy and boisterous in daily life. Obliging and anxious to please. Marked sexual propensities and unable to control herself when men are around. Masturbates and has perverted sexual relations with other patients. Sly and cunning, but shows little real foresight. Capable of doing good work, but is slovenly and careless unless closely supervised. Was formerly a great inciter of mischief and a trouble-maker, but during the last year has "settled down" and grown much more tractable and industrious.

CASE XIII.—T. Q., male.

Age when admitted (October, 1907) 16 years. Parents Russian Jews. No bad heredity. Patient was committed here as an alternative to being sentenced in police court for stealing money from his employer. States that he has stolen money repeatedly in places where he was employed. At time of his commitment here, there was a warrant out for his arrest for rape committed on a young girl. He claims that this rape was committed as the result of a "dare" by some of his associates.

Degenerative stigmata: Skull asymmetrical. Hair grows low on forehead. Eyebrows bushy and meet in center. Heavy supra-orbital ridges. Ears asymmetrical and unevenly placed. Teeth dark, discolored and crowded in jaw. Teeth at irregular angles, cuspids parallel with bicuspids. Face asymmetrical.

Reads fluently in 3d reader. Spells well. Good handwriting. Can add to 20, but cannot subtract, multiply or divide. Can tell time by hours but

not by minutes. This patient is frank about his escapades and describes them freely. Says he found it very hard to do school work. Rather stupid and heavy but with fair understanding of ordinary affairs. Memory as to times and places very uncertain. Apparently an uncomplicated case of imbecility.

CASE XIV.—X. E., male.

Age when admitted 18 years. Mother feeble-minded, Father unknown. Boy illegitimate. Was committed to the school as an alternative to being sentenced for rape committed on a young girl. This was the third time this boy had committed rape. Had repeatedly stolen money and other articles, and had committed assaults on boys who bothered him.

Degenerative stigmata: Hair low on forehead. Heavy supra-orbital ridges. Eyebrows bushy and meet in center. Deep orbits. Ears asymmetrical and badly made. High-arched palate. Face asymmetrical.

Present age 21. Patient had been in public school continuously up to time of his admission here, but is able to read only simple books like the primer. Cannot spell simple words; can write a little; knows nothing of number. Cannot tell time. In using language is able to express himself well. Has a large fund of general information. This patient is extremely talkative; very pompous in manner and language. Vain of his personal appearance. Neat in dress and person. Is a persistent and senseless liar. Is rebellious and contrary with new attendants. Has attacked several attendants without provocation. On general principles is opposed to those in power. Masturbates, but is not a sexual pervert.

CASE XV.—N. T., female.

Age at admission 16 years. Father moral pervert in every sense. Mother confesses to having lived with many different men. Brother of patient has a history of incorrigibility and multiple court record. Patient had fits of temper as a child. Learned to talk late. Wet bed. Stubborn, wilful, passionate, and "could not tell right from wrong." Liked to play with younger children. Cruel to other children. Immediate occasion for commitment was result of being brought into court for incest with father. While patient was with mother on vacation two years ago, she became pregnant and gave birth to a child.

Degenerative stigmata: Large supra-orbital ridges. Receding chin. Receding forehead. Prominent zygoma. Palate very high and narrow. Ears asymmetrical.

Present age 21. Reads easily in 3d reader. Writes good hand. Can add in hundreds; subtract slowly under ten; no multiplication. Can tell time. Expresses herself fluently and intelligently. Patient is indolent, cunning; has no sense of shame. Quarrelsome. Exceedingly crafty in gaining her own ends. Has attacked other patients and attendants with knife without provocation. Had no love for her baby and manifested no real grief when it died. Becomes sexually excited when men are around.

CASE XVI.—O. L., female.

Age when admitted 14 years. Father and mother both intemperate and degenerate, and always on the verge of pauperism. Patient admitted here from Tewksbury Almshouse, with history of incorrigibility. Cruel to animals, etc. Had put a cat on a red-hot stove. Had thrown knives and stones at playmates. Said she would like to have a small baby to strike and kick. Very untruthful and a chronic thief.

Degenerative stigmata: Eyebrows bushy. Zygoma prominent. Face asymmetrical. Nose small and rudimentary. Ears badly shaped, with adherent lobules. High palate. Teeth crowded, and placed on different planes. Low forehead. Body small and undersized.

Present age 16. Reads in 4th reader. Uses language easily. Can add a little under 5. Can tell time. This patient is sly and cunning. Vain and boastful. Fond of teasing. Has fits of temper when she screams, tears clothing and pulls out her hair. Likes to attract attention and is very vain of her personal appearance. Is in a state of chronic rebellion against the constituted authorities, a trouble-maker and inciter of mischief. About two years ago this patient, with another patient, drowned a fellow-patient in a bath tub.

CASE XVII.—K. I., male.

Age when admitted 17. Irish-American. Family history unknown. Patient walked at 18 months, did not talk until 7, could not learn in school. Had convulsions in first year. Began use of tobacco at age of 8. Referred to the school from the criminal court, where he was held on a charge of rape committed on a young girl. Had worked for several years in a factory, where he carried goods from one part of the factory to another.

Degenerative stigmata. Very prominent supra-orbital ridges. Face asymmetrical. High palate. Ears prominent and outstanding.

Present age 18 years. Reads easily in 4th reader. Poor speller. Adds to 10, but cannot subtract. Typical imbecile of medium grade. Happy-go-lucky fellow. High tempered. Works well under supervision; idle otherwise.

CASE XVIII.—Q. K., male.

Age when admitted 9. No family history. Peculiar from early infancy. Has always been nervous.

Degenerative stigmata: Face asymmetrical. Eyeballs protruding. Eyes widely spaced. Deep orbits.

Present age 11 years. Beginning to read easy sentences in primer. Cannot spell, except 3-letter words. Can add to 5 fairly well. Cannot tell time. Patient very troublesome and incorrigible. Has a bright, knowing and intelligent manner. Has a fund of general information, and seems brighter than he really is. Talkative. Has used tobacco since an early age. Very cruel to smaller children. Has ungovernable temper. Is a malicious liar. A very successful inciter of discontent and rebellion among

the other patients. Is most ingenious and convincing in his falsehoods. Inveterate thief. No appreciable motive for his bad behavior.

CASE XIX.—J. E., male.

Age when admitted 13 years. Parents of Irish descent. Father not very strong mentally. Patient eighth child in a family of 14. Seven children have died, 3 still-born, 1 hydrocephalic. Patient committed to the school after being before the local court repeatedly for incorrigibility, theft, destruction of property, etc.

Degenerative stigmata: Skull of microcephalic type and asymmetrical. Ears dissimilar. Nasal septum deviated. Palate high-arched.

Present age 15 years. Reads well in 2d reader. Spells simple words. Can add to 15 slowly and rather uncertainly. Cannot subtract or multiply. This patient is one of the most incorrigible boys I have ever known. He lies persistently, purposelessly and maliciously. He is a great thief. Very impatient of control. Wantonly destructive. Cruel to other children. Vain, conceited, quick-tempered, insolent. Very fond of tobacco which he has used since he was 8 years old. Absence of motive characterizes many of his actions. Works well under supervision.

In every case with a court record, and in the cases from the reform schools, the offence for which the patient was originally committed was not a first offence, but was the climax of a long series of petty misdeeds which finally became unbearable. Probably all this group were committed by the police courts without question as to their mental condition. In several cases it was only after the patient had been "placed out" to service several times, from the reform school, and had repeatedly failed to respond favorably to good environment that it was realized that mental defect was the underlying cause of the delinquency.

A large proportion of the cases described well represents the class of cases who formerly would have been considered merely as criminals, with no thought of mental defect.

By reason of early incorrigibility or bad home surroundings many of these cases had few school advantages in childhood. In court their mental deficiency was probably mistaken for ignorance from bad inheritance or lack of opportunity.

Nearly every case shows either no family history obtainable—which in the case of a child usually means a dubious heredity—or a positive history of bad inheritance.

Nearly every case presents various physical stigmata of degeneracy in skull, ears, face, teeth, palate or physiognomy. All of the

cases described are in the period of adolescence or early adult life, and yet only a few present the usual comeliness of feature and physical attractiveness usually shown at this period of life.

All of these patients boast of their evil acts and eagerly discuss the criminal experiences of a new-comer. They gloat over newspaper stories of crime and shame. They delight in "yellow journalism." They reveled in the exploits of Tracy the desperado and of Thaw the assassin.

Of the cases described, none seem able to apply themselves continuously in any one direction, even for a greatly desired reward. Even the brightest were unable to master more than the merest rudiments of arithmetic.

The patients described vary greatly in general intelligence, and in the amount of definite knowledge which they have acquired, but they greatly resemble each other in their childish tastes, excessive vanity, unreliability, aggressive boastful egotism, selfishness, moral insensibility, fondness for malicious mischief and trouble-making, indolence, willingness to run great risks for the sake of some small gain, untruthfulness, lack of shame and remorse, lack of sympathy, etc.

The cases described fairly represent the criminal imbecile type. I have no doubt as to the actual imbecility and the resulting moral irresponsibility of every one of these cases. As a group, the female cases especially well illustrate the so-called "high-grade imbecile." In fact, the physical and psychical stigmata exhibited by this group of imbeciles, selected because of their criminal tendencies and acts, are merely the usual signs and symptoms found in the ordinary case of imbecility, modified only in *degree* and not in *kind*.

This class of borderline cases with criminal tendencies now constitutes a troublesome and puzzling factor in our institutions for the feeble-minded. They are often malicious, deceitful and inciters of mischief and insubordination. They have a wonderful power of suggestion over their simple-minded fellow-patients. They are generally committed to the institution against the wishes of their parents. The efforts of their friends to obtain their release are constant and perplexing. If a case of this description is taken before the Supreme Court on a writ of habeas corpus it is

more than likely that the patient will be released. Indeed, it is not difficult to find reputable medical men who would testify that the case "is by no means a fool," and that he ought not to be deprived of his liberty. It is evident that clinical types and shadings of mental deficiency have become familiar to the alienist which have not yet been so definitely formulated and classified as to be readily recognized by the profession generally. It is equally true that the legal definitions and precedents pertaining to ordinary cases of imbecility are inadequate when applied to these high-grade imbeciles. We have, therefore, to face the anomalous fact that it is easy to have a class of patients committed to our institutions who are promptly discharged by the higher courts because these lesser types of deficiency have neither been adequately formulated medically nor recognized legally.

The diagnosis of borderline cases of imbecility is simplified if it is possible to obtain the family history and the personal history of the patient, with special reference to the period of infancy and early childhood. Even in the cases with very slight mental defect there is usually a history of delayed dentition, late walking, delayed speech, relatively long continuance of untidy habits, and very likely a history of convulsions as part of the history of the first few years of life.

The public school history of the patient is almost always illuminating. As a rule these cases do not compare at all favorably in their school work with the average child. It is seldom these cases are carried beyond the standard of third-grade work. Difficulty in understanding simple arithmetical abstractions is very significant. The presence or absence of various degenerative stigmata is significant.

Selfishness, moral insensibility, willingness to run great risks for slight possible gain, childish tastes, lack of affection for relatives—all these are significant symptoms. A very constant symptom is inability on the part of the patient to apply himself continuously either in school work or in any other occupation without constant supervision. In some cases with only slight intellectual defect, the inability to "make good" socially will be a deciding factor in the diagnosis. In a given case the age, sex, social condition, physical health, school advantages, etc., have a distinct bearing on the interpretation of the case.

Some of the cases reported were considered as typical cases of so-called "moral imbecility" without intellectual defect, until long observation and close analysis demonstrated that they were cases of *true imbecility*, where the anti-social tendencies of the ordinary imbecile were exaggerated to such an extent as to overshadow the presence of intellectual impairment, and the existence of the characteristic physical, mental and moral signs of congenital mental defect.

I have never happened to see a well-marked case of so-called "congenital moral imbecility" which did not exhibit many, or indeed most, of the significant stigmata of *true imbecility*.

With the moral imbecile the stock of showy and superficial knowledge, the confident and boastful manner, the glibness of tongue, the spurious brightness, the cunning and carefully planned schemes—all these serve to mask the significance of the supreme selfishness, the lack of shame and remorse, the unbounded egotism, the absence of adequate motive, the cruelty, the lack of fear of consequences, the lack of judgment, the love of notoriety, the failure to keep a situation, the failure to respect the feelings of relatives, the abnormal social re-actions, the idleness and tendency to early vice, which are so apt to characterize this type of defective.

Kraepelin admirably describes the modern conception of "moral imbecility" as follows:

"Moral imbecility represents a form of mental weakness which includes chiefly the realm of the feelings. It is characterized by the absence or weakness of those feelings which inhibit the development of marked selfishness. The intellect, as regards matters of practical life, is moderately developed; patients apprehend well; they are able to accumulate more or less knowledge, which they use more or less for their own advantage; possess a good memory and show no defects in the process of thought. They do, however, lack the ability to obtain general viewpoints, to perform any work of a high-grade, and to form an adequate conception of life in the outer world.

Morally their lack of sympathy is manifested from youth up in their cruelty towards animals, their tendency to tease and roughly use playmates, and an inaccessibility to moral influences. They develop the most pronounced selfishness, lack of sense of honor, and of affection for parents and relatives. It is impossible to train them because of the absence of love and ambition. They tell falsehoods, become crafty, deceitful and stubborn. The egotism becomes more and more evident in their great conceit, bragging

and wilfulness, their inordinate desire for enjoyment, their violence and dissipation.

* * * * *

They are incapable of resisting temptation and give way to sudden impulses and emotional outbursts, while the susceptibility to alcohol is especially prominent."

So-called "moral imbeciles" frequently commit the most heinous and revolting crimes. The boy Pomeroy was a high-grade imbecile who had been accepted for admission to the Massachusetts School for the Feeble-minded when he committed his notorious crimes.

Every imbecile, especially the high-grade imbecile, is a potential criminal, needing only the proper environment and opportunity for the development and expression of his criminal tendencies. The unrecognized criminal is a most dangerous element in the community. The fact that the high-grade imbecile often excels in one or more lines—music, painting, some limited branch of mechanics—is misleading. Maliciously mischievous children, runaways and vagrants, the incorrigibles, disorderly and ungovernable children, are often of the imbecile type. Lighter grades of imbecility often fail of recognition in early childhood, but as soon as some unusual situation arises demanding discretion and decision of action, and self-control, the mental, moral and social incapacity becomes evident. The mental incapacity becomes more evident in youth and adolescence as contrasted with the rapid mental development of their playmates.

The juvenile expression of this slight degree of imbecility, especially in children watched and guarded in good homes, is trivial and harmless. The reaction of these patients to the temptations of adolescent and adult life is another matter.

The life history of the case put under permanent protection and training at an early age is very different from that of the cases which grow up at large in a modern urban or town community. Nearly all of the cases trained from childhood or youth may be taught habits of industry and comparatively good behavior, and at from 25 to 30 years of age a large proportion of them "settle down" to a condition of inhibition of the anti-social traits, and indeed to a condition of ostentatious pride in the virtues which they unwillingly practice.

Constant occupation at congenial work, with strict but kindly discipline, and with proper recreation, is the basis of the treatment required.

Butler of Indiana says:

"In the county and local jails we have frequent cause to note the relationship between feeble-mindedness and crime. Boys and young men mentally weak, are often found being held for trial or serving a jail sentence for rape, or attempted rape, incendiarism, or other crime.

"Many of the children whose cases are brought before the juvenile courts are mentally weak or come from homes where, because of the weak wills of the parents, they were not given proper training or direction.

"The last resort of the juvenile courts is the State Reform Schools. In these institutions are many children of this class of mental defectives.

"Mental defectives are frequently committed to the reformatories for adults. From studies made at the New York State Reformatory it is stated that this class constitutes about one-fifth of the population of that institution. A far larger proportion is reported as being incapable of controlling their powers or co-ordinating their faculties, and are termed 'control defectives.' The superintendent of the schools at the Indiana Reformatory states that about 21 per cent of those received are mentally defective on admission.

"In the State prisons also are to be found those who are feeble-minded. Some of these were nuisances in their respective communities; some were sent here because there appeared to be no other place to send them, others for the commission of offences for which they were not really responsible.

"In both reformatories and prisons these defectives are the most troublesome class of prisoners. Irrational, irritable, their weak minds led by their impulses, they interfere with discipline and their management requires the highest skill. Their presence at times leads to disturbances and sometimes to serious, if not fatal, assaults upon officers and inmates."

The literature of criminology teems with references to the close analogy between the imbecile and the instinctive criminal. They have a common heredity, and criminal anthropology proves that the evidences of degeneration—anatomical, physiological and psychical—are identical in the two groups.

Is there not more than a close resemblance between the *imbecile* and the *instinctive criminal*? Is not the typical instinctive criminal of Lombroso a typical adult imbecile of middle or high-grade, plus opportunity and experience in the community?

We have only begun to study the relationship between imbecility and crime. The criminal tendencies of the epileptic are fairly well-known. The insane criminal is being studied from

many points of view. There are many crimes committed by imbeciles for every one committed by an insane person. The average prison population includes more imbeciles than lunatics.

We shall eventually apply our knowledge of imbecility to the study and management of juvenile incorrigibles and adult criminals. The ultimate application of that knowledge will materially modify the action of the courts and the methods of treatment and management of prisoners.

Cases of imbecility with criminal propensities—"criminals who have committed no crime"—will be recognized at an early age before they have acquired facility in crime, and permanently taken out of the community, and given life-long care and supervision in special institutions, combining the educational and developmental methods of a school for the feeble-minded with the industry and security of a modern penal institution. Such provision would be only a rational extension of the principle of indeterminate sentence, and if safe-guarded by careful and repeated expert examination and observation could do no injustice and would greatly diminish crime in the immediate future. Adult criminal imbeciles, or instinctive criminals, would be committed to such an institution under the same conditions. Similar cases developing in institutions for ordinary imbeciles would be permanently transferred to the special institution.

ITALIAN IMMIGRATION AND INSANITY.

By ALBERT WARREN FERRIS, A. M., M. D.,
President of the New York State Commission in Lunacy.

The first meeting of the Italian parliament was convened in Turin in 1861 and Victor Emanuel was proclaimed King of Italy; but Rome and Venice were still under the control of the enemy, and Cavour died in that year. You may reckon the existence of United Italy from that date, if you choose; but "Italy free" was not an accomplished fact until Jules Favre, foreign minister of France, withdrew the French troops from Italian soil and the King, entering Rome, was left in sole control on September 20, 1870.

An amalgamation of many different peoples cannot be accomplished in one generation; scarcely in two generations. Florence, with all her beauty, could not accomplish within the span of our own lives the unification of the Italian peoples. Rome, with all her grandeur, could not compel rapid homogeneity of race in the land which music calls her own.

In the days of Hannibal, Carthage was a regal city, set upon a fertile soil, with a population of 700,000 boasting the prestige of local naval supremacy, controlling Sardinia, Sicily, Malta, Corsica and the north coast of Africa, profiting from the returns of rich argosies engaged in trade with Spain, Britain and the Baltic countries, with enormous income from a trade with the interior of Africa, and enjoying a certain wealth that seemed to assure her ambitious citizens a continuous prosperity. Yet she cut down her forests and suffered the devastations of war, and the former powerful rival of Rome dwindled into insignificance. To-day the site of Carthage is marked by the habitation of a few hundred struggling Arabs.

Not so Italy. The storm of the French Revolution broke in 1792 and Napoleon, four years later, entered Italy and "let loose

the dogs of war." She has been partitioned repeatedly by hostile forces. Taxes and tithes have been wrung from her by rapacious conquerors. Greed and avarice have combined to drain her very lifeblood. Yet she is emerging rapidly from the gloom of oppression and in another generation is destined to resume the occupation of recording a brilliant history such as was written for centuries before.

One-tenth of the territory of the country is barren rock. One-third consists of mountains. The destruction of her forests has rendered her soil dry and comparatively unproductive. Yet terraces have been formed by patient labor, and earth has been gathered and conserved, gardens have been constructed and the unconquerable spirit of the Italian people has asserted itself until the sheer force of their industry, perseverance and shrewdness compels the admiration of the world.

Metternich once said: "Italy is nothing but a geographical expression." By this he meant that it is a name given to a territory in which live several groups of distinct peoples, with almost tribal differences. The student or traveler of to-day receives the same impression. Thus it becomes necessary, in describing Italy and the Italians, to consider separately North Italy and South Italy, as distinct countries with distinctive inhabitants.

Some of our Italian immigrants come to us from provinces of North Italy—from Genova of Liguria, Bologna of Emilia, Udine of Venetia, and Pesaro of Marches. By far the greater number comes from the southern provinces, notably Napoli, Caserta and Avellino of Campania; Chieti of Abruzzi; Campobasso of Molise, and Reggio di Calabria; while many Sicilians sail hither from Messina, Catania and Palermo.

Not only are there differences in manners and in character, but there are marked physical, really ethnical differences. In the North there is more activity in industrial pursuits and the Northerners are more generally progressive. A keen interest is evinced in political education and in social questions. There is a greater advance in the accumulation of wealth, in the extension of trade and in education. An examination of recruits for the army revealed a percentage of 14.98 illiterates among the Piedmontese and of 18.42 among the Lombards. The Piedmontese

and Tuscans are excellent landlords; they use chemical fertilizers to enrich the soil and they pursue successful dairy farming. The men are all tall and strong. The Northerners show the persisting influence of former Austrian rule.

In the South, on the other hand, are found the results of the corruption and cruelty of the Spanish and Bourbon rulers of the olden times. The South is wholly agricultural and is poor. Many of the men are undersized and apparently ill-nourished. The social and political questions of the day are viewed with apathy. There is less advance in trade or education than in North Italy. The proportion of illiterate recruits from the province of Napoli was 51.57 per cent, from Sicily of 55.04 per cent. There has been in the past greater tendency to crime. Nine times as many murders have been reported in Sicily as in Venetia or Lombardy. Taxes fall rather heavily on the agriculturist and less money has been spent for purposes of education, of railways and of public works.

Brigandage, however, originally a political movement, later a powerful alliance of criminals for robbery or murder, no longer exists. For many years it survived as an expression of poverty and of hatred of the landlords, and until a decade ago was maintained in some localities simply for revenge and robbery in the form of the Mafia or the Camorra. The present system known as the Mafia levies toll on farmers, wine-growers and orange-growers, murders those who resist, and in rare instances influences judicial decisions and public contracts. Camorra, flourishing only in Naples, was an organization of thieves and dishonest people of the lowest class. Formerly its members levied tolls on trade and professions.

In the Southerners there is an Albanian and Greek inter-mixture, and in Sicily and Sardinia the Arabic blood is strong. This fact accounts for the remarkable differences in physique, temperament and characteristics of northerners, southerners and islanders.

Italy is said to average as cold as England; but the warmer weather in the South is an alleged reason for the decrease of steadiness and for the increase of laziness and passionateness one notices in traveling from Central to Southern Italy.

In the time of the Bourbons and up to about 1850, Southern nobles have been described as ignorant, overbearing, lazy and cor-

rupt. They absented themselves at Rome and Palermo ; they were spendthrifts, and excited an evil influence in politics ; they were hated by the peasantry with a few shining exceptions. In the cities the youths of the wealthy class of those days secured little education, passed their time in driving, hunting, traveling and spending money, and showed a rooted aversion to work. Professional men were very poorly remunerated. A large number of government office-holders received mere subsistence.

Why should not the peasants of that time have been unhappy and resentful? Their soil was nearly exhausted, they had little or no farm machinery. They raised wheat, corn, wines, olive oil, oranges and lemons. They had few cattle in the South and little pasture. For greater safety, they dwelt in villages frequently on hilltops and walked miles to their work. They were half starved, ill-clad. They knew the meaning of misery. In the interior of Sicily at that time the greatest poverty was found, and the people were far from provident. The petty accumulations of months were often spent on a single feast day. The irregular day laborer was the most miserable. He dwelt in a rude hut and suffered from absentee landlords, yet he did not resort to drink. The lapse of over a half-century has made an astounding difference. The conditions I have described have absolutely disappeared ; but they undoubtedly left their impress and were responsible for certain characteristics of the Italian people. The most remarkable fact in connection with this matter is that the Italians were not crushed by such circumstances. They emerged patient, courageous, industrious and hopeful. In fact, Southern Italy has contributed a large percentage of the professional men, art critics, painters, philosophers and patriots of late years.

Two prominent industries have been the sulphur mines and the marble quarries. In Sicily, men and boys, all peasants, labor in the sulphur mines, with little return because of the primitive methods employed and the falling price of sulphur. The miner (*picconiere*) works six to seven hours a day for five days in the week, at forty cents to sixty-five cents per day. The *carusi*, or carriers, boys of seven to eighteen years old, stagger out of the headings with 70-pound loads from seven to eight hours a day, each having been leased by his parents to the miners for \$10 to \$60,

which sum is worked out slowly under frequently brutal taskmasters. The miners are ignorant, quarrelsome, deficient in moral sense and prone to gambling.

The quarrymen, on the contrary, who labor in the mountains in the province of Massa in northern Tuscany, are stalwart specimens of manhood, careless and extravagant, somewhat turbulent and restless and fond of adventure.

In the North and certain other parts of Italy among the newer industries are the manufacture of silk, linen and cotton; ship-building, sugar beet raising; and the manufacture of steel goods, locomotives and electrical machinery. Among the people engaged in trades and regular occupation thrift and frugality are noticeable.

For long years the taxes constituted a heavy burden; and they so continued under the old policy of the Bourbons. The State, until about two decades ago, took about thirty per cent of one's income. There was an income tax and a family tax; a tax on horses, carriages, servants and dogs. While saddle horses went free, the peasants' donkeys were taxed. The poor were the greatest sufferers, for how could an agriculturist, earning sixteen cents to twenty-nine cents a day (or in the South, eight cents to ten cents a day and his lodging) afford to pay a tax? All this is changed to-day and now the taxes are levied in accordance with the English law; they fall heaviest on the owners and landlords.

The peasant's foods must needs be simple. He has a bread made of Indian corn (*polenta*) or of wheat. He has no meat. He has beans, celery, radishes, fruit, a little salt fish, bacon, frogs and snails. The majority of laborers live on *polenta* and macaroni only. Butter is rare in the South. So many suffer from inadequate food that the government a year ago proposed to provide extra food, for the school children in the village of Vercelli in Piedmont, as an experiment, in the hopes that the race might thereby be improved in stature.

Several families occupy one room, dress in rags, and yet are cheerful. In the South one sees castles surrounded by hovels, with donkeys, cattle, pigs and human beings in close proximity. There is no poor law, yet there are many splendid private charities for the infirm, insane or infants, especially in the North.

There is a great deal of sickness among the peasants. Cav. Dr. Antonio Stella, of New York, is authority for the statement that while prevalent among Italians in America, tuberculosis is almost unknown in Italy except where imported by returning emigrants. Malaria is the worst scourge. It was reported a few years ago that eighty per cent of the Southerners are exposed to it, and that 20,000 died annually in Basilicata, Calabria, Maremma and Sardinia. The reclaiming of the Pontine Marshes is resulting in great improvement in the death rate of Southern Italy. The peasants are driven by malaria into the town; but they prefer town life. They have strong attachment for the house or home, and for their native village. They take little interest in sanitary conveniences, bathing once or at most twice a week, when well-to-do; otherwise only in the months of July or August. In the cities the poor live in crowded quarters in large tenements, without ventilation. In Naples many live in damp cellars, several families together, fostering disease, filth and vice.

Italians at home are prolific, the birth rate being nearly the highest in Europe, and parents are very fond of their children. Burly and apparent rough laborers are gentle and tender with the babies. But in this country, in the second generation, owing to the work the women do in the shops, or stooping over sewing machines, and also owing to venereal disease, absolute sterility or one-child sterility is common.

Women are respected. There is little sexual immorality among the Italians. Family ties are properly regarded. A married woman or engaged woman will not be seen in the company of any but her own man. In the South travelers tell us the women are much like Mohammedan women. They are uneducated except as regards the kitchen, the linen closet, the children, and the work of the fields. The high sense of honor among Italian men in respect to women is probably better preserved for the reason that there are practically no drunkards among the Italians, while there are no abstainers.

Religion is a primitive affair among the Italian peasantry. In South Italy there is a simple belief in miracles and mysteries, and a surprising amount of superstition. Fifty years ago the clergy were uneducated, and belonged largely to the low classes of

society. The average priest of that time mastered only reading and writing, and did not lead an austere or pure life. But a tremendous change occurred, and the enlightenment of Italy as shown to-day came largely through a new educated and devoted clergy.

The army is a great feature of Italian life. When on a peace footing Italy maintains a standing army of 330,000 men, and about 3,250,000 in time of war, recruiting by conscription from the able-bodied men from twenty to forty years of age. A few are in exempt classes. The discipline of army life has a very salutary effect in removing provincial differences and in cultivating order and self-control. Besides this, the recruits are instructed by their officers and profit much thereby.

An educational system is being elaborated by some zealous and able men, but is not yet entirely efficient. Parents find a way to evade the compulsory education law. However, the proportion of illiterates fell from 78 per cent in 1867, to 67 per cent in 1881, and to 36 per cent in 1896, in the South. In Venetia and Lombardy only 6 per cent of the children of school age are absentees, but in the South the figure is much larger. The proportion of the population attending schools in 1895 was 8.2 per cent, while the proportion in England at the same time was 17.5 per cent. The illiterary of Italian immigrants into the United States is 46 per cent, while that of German immigrants is less than 3 per cent.

We have thus examined hastily and generally the many factors that combine to influence or modify the physical and mental development of the Italian people who come to our shores, and have fairly weighed their temperamental and acquired mental traits. Now let us consider them as immigrants.

It is stated that 600,000 Italians immigrate annually into European countries, to Tunis, Egypt, South America and the United States.

The statistics of the Department of Labor of the State of New York obtained from the authorities at Washington show that the total number of immigrants into the United States from Italy during 1907 was 264,208, of which number 1809 were debarred, leaving 262,399 in the country, of which total probably 100 were returned after landing. Of these people 45,545 came from North Italy, including 4145 illiterates and 3418 who had been in this

country before. South Italy sent us 218,663 of whom 107,132 were illiterates and 13,546 had been in the United States previously.

Every year 160,000 return to Italy. This year 200,000 did so.

The Rev. Antonio Mangano tells us what reasons operate to send the Italians from home to-day. Mr. Mangano was educated at Brown and Columbia Universities, and is a Baptist clergyman in charge of a missionary chapel in Brooklyn. His articles on Italians in the publication "*Charities and The Commons*" are of much interest. He says that Italians leave home because of poverty, wretchedness and want; high rent; the indifference of absent landlords and the severity of agents; class distinctions; occasional failure of crops; comparatively heavy taxation; systematized repression; temptation of steamship agents; glowing tales told by returned emigrants; and the very laudable desire to rise in the world, to educate their children, and to become respected property-holders.

From the reports in the "*Bulletin*" of the National Department of Labor at Washington, by Emily Foote Meade, who made an exhaustive study of "The Italian on the Land" in this country, we must conclude that Italians have good instincts that are easily awakened, latent tendencies that only need opportunity, strength and resistance of fiber, imitativeness and adaptability and that they become desirable and useful citizens.

Into what occupations does the Italian immigrant drift, or what work does he choose, in this country? How much stress and strain are his portion in the first years of life in this new land? The occupations in which we usually see Italian peasants employed are the following: In the cities, they become day laborers, sellers of fruit, nuts and candy; dealers in coal, ice and wood; furnace men, caretakers of unoccupied houses, watchmen over new buildings, street cleaners; while others become shoemakers, plasterers, importers of fruit, florists, caterers, public officials, bankers, merchants of wine and oil and most efficient policemen. The women become factory hands and dressmakers. Of the garment workers in New York City, 95 per cent are Italian men and women.

In the country men become successful gardeners and farmers,

berry pickers ; brick makers, glass polishers and general factory workers ; mill hands, builders and contractors.

Mr. Severn, New York State representative of the Italian-Swiss Agricultural Colony, of California, states that next to Chinese labor, fruit growers find nothing equal to Italian labor. He corroborates the statement made by Elliott Lord in "The Italian in America," wherein a number of Italian fruit garden colonies scattered through New England as well as through the South and West are described. Lord shows that Italian colonists increase surrounding land values very materially wherever they settle.

About 1892 an Italian named John Carini went to South Glastonbury, Conn., in the employ of the New Haven and Hartford Railroad Company as an axeman to cut railroad ties. It is reported that at the end of two years he had saved enough money to purchase a farm and send to Italy for his family. The entire family worked upon the farm until it produced enough income to enable him to buy additional land, and to-day he owns 1500 acres, almost all of which is under high cultivation. He raises peaches, apples, plums, pears, grapes, small fruits and vegetables.

J. H. Hale, of South Glastonbury, is authority for the statement that the Italian cultivates successfully land which others find too difficult to use on account of rocks and stumps. The perseverance and the courage of the Italian in matters of agriculture are indomitable.

With the willingness to work at anything and with work to be had, there is no very severe pressure, no great confusion or difficulty experienced except in the coldest part of the winter. We should therefore not expect to see much mental alienation among the Italians in this country ; and the fact is, there is little.

Of alcoholic intemperance I cannot make a definite statement illustrated with figures ; but all reports are to the effect that there are remarkably few cases. As to epilepsy, its incidence among Italians in this country is practically negligible. Of 2450 epileptic patients received into Craig Colony for Epileptics, at Sonyea, N. Y., up to April 10, 1908, but 7 were born in Italy, and but 16 were born in America of Italian percentage.

Many of the figures quoted hereafter regarding the Italian insane were compiled by Dr. Thomas W. Salmon, formerly a phy-

sician in one of the New York State Hospitals for the Insane, and now an assistant surgeon in the U. S. Marine Hospital Service, at Boston, Mass. Of 100 immigrants certified for insanity at Ellis Island, New York City, where all the immigrants are inspected by U. S. Government and New York State alienists, 12 were Italians, 12 were Austro-Hungarians, 12 were Greeks, 17 were Russians, or Finns, 13 were English and 19 were Irish. Of 100 deported from public institutions 10 were Italians, 5 were Germans, 21 were Austro-Hungarians, 29 were Russians or Finns, 5 were English and 19 were Irish. The percentage totals of all arrivals that year were as follows:

Italians	28.8%
Germans	3.5
Austro-Hungarians	25.4
Greeks	2.0
Russians or Finns	19.6
English	3.7
Irish	2.6

This makes a very favorable exhibit for the Italians.

For the fiscal year of the New York State Hospitals for the Insane ending September 30, 1905, Dr. Salmon gives some very instructive figures, quoting from material collated by Dr. William L. Russell, Medical Inspector of the New York State Commission in Lunacy. The percentage of the whole number of foreign-born patients in these hospitals was as follows:

Italy	3.9%
Germany	25.9
Austria-Hungary	6.3
Russia and Poland.....	8.8
England and Wales.....	5.9
Ireland	36.0

The percentage of the whole number of foreign-born in the State of New York at the same time was:

Italy	9.6%
Germany	25.3
Austria-Hungary	6.9
Russia and Poland	12.4
England and Wales.....	7.5
Ireland	22.4

The ratio of insane to population was therefore as follows:

Italy	1 to 431
Germany	1 to 173
Austria-Hungary	1 to 199
Russia and Poland.....	1 to 249
England and Wales.....	1 to 209
Ireland	1 to 111

Before the "New Immigration" from Italy began, the proportions of the foreign-born insane in the State Hospitals was much as shown by Dr. Russell's statistics of Willard State Hospital, namely:

Italy	3.0%
Germany	26.0
Austria-Hungary	4.0
Russia and Finland.....	6.0
England	8.5
Ireland	43.0

The changed conditions are illustrated by Dr. Russell's figures regarding foreign-born admissions into Manhattan State Hospital in New York City, in 1905, namely:

Italy	6.5%
Germany	18.0
Austria-Hungary	14.0
Russia and Finland.....	13.0
England	3.0
Ireland	24.5

With vast numbers of Italians entering into the country since the "New Immigration" began in 1900, the ratio of insane Italians to the whole population in the United States is only 1 to 439; Austria-Hungary presenting 1 to 292 and Russia and Finland 1 to 380.

Dr. Salmon remarks: "In spite of the most effective inspection which can be derived, there must every year be admitted many immigrants already insane, and many thousands who are destined, under the unusual stress of the first ten years in the United States, to become insane." This statement, one must say on reflection, does not apply to the Italian immigrants.

There are dangers to be feared in the case of Italy. Her illiterates are a drawback, though they learn rapidly and the second generation furnishes a satisfactory, if not an admirable, class of

citizens. The idiots and imbeciles, the mentally defective and the constitutionally inferior whom we receive from Italy constitute indeed a menace.

It is probably a fact that practically all the able-bodied peasants of certain localities are now here in this country; but the statement is untrue that an effort is being made to aid the diseased and inferior who had been left behind in these localities, to come over also and share the advantages of this foster country.

Naval Surgeon Colonel A. Montano, of the Italian Navy, in the official bulletin of Italian immigrants published at Rome in 1907, makes the following report:

Number of cases of mental diseases found among Italian immigrants who came to North America or returned from North America to Italy during 1906:

NUMBER OF CASES COUNTED ON THE SHIPS.

	Bound for the U. S.		Bound for Italy.		Total.
	Men.	Women.	Men.	Women.	
Alcoholism .....	..	..	2	..	2
Mental alienation .....	..	..	23 ¹	3	26
Dementia .....	..	..	9	3	12
Sensorial phrenosis .....	..	..	1	..	1
Melancholia .....	..	..	8	9	17
Acute mania .....	..	..	2	..	2
Persecution mania .....	..	..	5	..	5
Religious mania .....	..	..	1	..	1
Paranoia .....	..	1	4	..	5
Sudden alienation	1 ²	..	..	..	1
	—	—	—	—	—
Total	1	1	55	15	72

On almost every vessel that carries Italian immigrants into or out of the United States a representative of the Italian Navy sails, charged with the duty of examining his fellow countrymen in the matter of all diseases that effect their physical or mental condition, and of reporting to his government at the time the ship reaches port. It is the desire of the Italian Government that sick, and especially insane Italians, shall not be sent out of the country.

Italy is caring for her poor and diseased at home. Italy is preparing to enforce her compulsory education laws, to make effective her humanitarian schemes, to uplift her people at home.

¹ One case committed suicide on board, cutting his throat with a razor.

² Jumped overboard and was drowned.

Investigation reveals the fact that the Italian insane in New York State are recruited almost exclusively from the rosy, round, well-nourished vegetarian country people, who, after immigration into our country, settle in our large cities in close quarters, engage daily in long hours of in-door labor, and live upon a diet consisting largely of meat of bad quality. A year of such life works havoc with them.

The problem will be easily and immediately solved if we assist to suburban or, better, to farming localities the peasants from the country regions of sunny Italy.

It is our duty and our opportunity to join hands with the active, scientific and wise Italian organizations in New York City, the great entrance gate of this country; to enforce with no faltering hand the rules that must govern all immigration, and to co-operate with the Italian Government in making, as it now does, a careful selection of immigrants at the Italian ports of embarkation. Thus our country will receive a valuable class of desirable new citizens, unusually free from insanity or a tendency thereto.

DISCUSSION.

DR. WENTWORTH.—I have been greatly interested in Dr. Ferris' paper and I had hoped that the other papers dealing with this subject could have been read here to-night. I am sure it is to be regretted that a subject considered of sufficient importance to receive the attention of a special committee of this Association should not have wider consideration on the floor in this meeting.

There are one or two points which come to my mind in connection with this subject: The Italian immigrant is probably better looked after than any other class of immigrants coming to this country. The Italian government guards the interest of its emigrating citizens, and a special commissioner, who is an army officer, is detailed to each ship bringing immigrants, who looks after their interests, sees they are properly provided for, that they have proper diet and are made generally comfortable. There is a change of detail very frequently, usually a new commissioner for each ship coming over. This is probably done in order that he may not become too familiar with the officers of the ship and that he may not be corrupted. He is very autocratic in his authority and is usually not much of a favorite with the ship's officers. The commissioner also supervises very carefully the returning passengers, and insane persons who are offered for passage upon ships returning to Italy must be in very good condition in order to pass his inspection, and be allowed on board with the persons over whom he has special charge.

My work with the Massachusetts State Board of Insanity for the past nine years has brought me into special touch with this subject of immigration. I presume most of you are familiar with the general provisions of the immigration laws and know that certain classes of aliens are excluded from landing on our shores. Epileptics, idiots and persons who have been insane within five years, or persons who may at any time have had two attacks of insanity, are not allowed to land; and should any aliens of these classes gain entrance to the country they are subject to arrest and deportation within a period of three years. Persons coming to our shores and becoming public charges from causes existing *prior* to landing are also deportable within three years after entering. Persons coming here and becoming public charges from causes arising *subsequent* to landing may be deported within one year after entry. The Massachusetts State Board has dealt with these cases, and a systematic inspection is made of each commitment to our insane hospitals. We have officers who make that their particular work, and persons who are committed as public charges are given special consideration, first, to determine whether or not they are entitled to support by our State. If not, where do they belong? If they are found to be within the classes restricted by the immigration laws we report them to the local commissioner of immigration, and if the histories which we give are verified, the cases are accepted and deportation follows.

There are certain classes of persons who are outside the operation of the immigration laws, who become dependents and are deported by the State authorities. These are persons who are still alien and are outside the three-year limit, or who may have become insane subsequent to landing, and are outside the one-year limit. These cases are reviewed by our department and if the conditions are suitable are deported by the State.

We also have a large number of persons who have acquired no rights of support in our State and are found to belong to other States. There is a provision of State law which empowers the Board of Insanity to send unsettled persons to the places where they belong. Therefore, we may send them outside the country, or to other States. There is a great diversity in the settlement laws of the several States and that has led to the greatest difficulties which we have experienced. One State provides that a legal settlement shall be acquired by one year's residence within the commonwealth, and one year's absence from the commonwealth will vacate that settlement.

Under the laws of the State of Massachusetts, five years residence without public aid and three poll taxes gives a man a settlement, and five years residence gives a woman a settlement; but ten years absence from the State is required to vacate a settlement. Settlements may also be derived by children, from either parent.

The methods which have been followed by our board have been very systematic. I think we have in years past been charged with taking dependents to almost any point outside the State and dumping them. I know this

has not been done in the last nine years. Our practice is to determine first where the person belongs and whether he has a legal residence in a certain place. It is very difficult to ascertain definitely in regard to persons who belong to foreign countries, but we do ascertain their proper places of residence and to what friends or to what authorities they should be sent. In returning aliens to foreign countries we place them in charge of a responsible person for the trans-Atlantic journey, and then provide caretakers on the other side of the water to accompany them to their homes. It costs something to do this work, but we consider it money well invested.

In sending persons to other States, we determine first whether or not that person has a legal right to go to the State from which he came. A person may have a legal residence in a certain State; he may go for a short time to another State and then may come into Massachusetts. We would not consider it warrantable to send that man to the State from which he immediately came, but we fix his legal right to be returned to his place of settlement, and then we return him to his friends, if that can properly be done, but if it cannot we take the matter up with the authorities; but we always deliver him to somebody who will provide for him. If he is a person who should not go into the community, we deliver him to someone who will see that he goes to a suitable institution.

We have had some difficulties from time to time in getting these matters adjusted equitably with sister States. Sometimes we find that a person has passed all his life in a certain State, but he gets down into Massachusetts, and occasionally we find that he has had assistance to get there. I have often known patients in our institutions to say that a certain officer bought them tickets and sent them to Boston. It is a good place to go to, and sometimes it has not been entirely easy to get rid of such a case. I recall an instance where we dealt with a hospital superintendent who has held high office in this Association. A man came to my attention who, some six weeks previously, had escaped from his institution. I took the matter up with the superintendent and he readily admitted that the patient was a resident of his city and had lately escaped from his hospital. I asked him if he would receive him back, but he answered "No," because he did not know if his board would be paid. But he said he would be a case for the county commissioners. I inquired, "If I send him to your county commissioners, will they arrest our officer?" and he replied that they probably would. I then said, "I suppose he will have to go the underground route," to which he replied, "I suppose he will," and we sent him that way; the officer delivered the man to his father and got out of town before he could be arrested.

I recall the case of a young woman who belonged in one of our neighboring New England States and there was a question as to which of two towns should receive her. Each said she belonged to the other. They both agreed that she belonged in that State, but neither would accept her, and Massachusetts has continued supporting her for several years.

So there are inequitable things that ought to be adjusted, and I think there should be legislation to empower the United States circuit courts to oblige a State to assume an obligation which belongs to it. There is no law that will provide for that at the present time.

There have been deported from the institutions for the insane in the State of Massachusetts in the last nine years 1350 persons, enough to fill a large institution; 268 were deported by the commissioner of immigration and the State Board has sent to their homes outside the State 1082 cases, making a total of 1350. Of these 126 were fifty or more years of age; 1103 were under forty years of age, and 755 under thirty years of age. The mental classification of the persons deported was as follows: *Dementia præcox*, or paranoid conditions, 714; general paralysis, 50; imbeciles and epileptics, 131; of other incurable forms of mental disease, 36, making 931 cases of probably incurable mental disease; persons who through the greater portion of their lives are likely to be public charges. The balance, 419, were cases of acute insanity or alcoholics.

To show the effectiveness of the work which we have been doing, and which we think has been accomplished through our care in placing these people with responsible parties, I will state that there are only seven persons out of those 1350 who have returned to our State and are now in our institutions.

DR. FERRIS.—I did not take up the matter of deportations, supposing, of course, that would be covered by Dr. Wilgus' paper. He is one of our Board of Alienists in New York State, of whom we have three. One or other of these men is at the port of New York almost every week day, and sometimes all are there when loads of aliens come in. Formerly they were the only alienists who examined incoming immigrants, but stimulated by their presence, the United States government has put in its own alienists, and so the work is now shared by the two sets of officials.

The average insane case lives in one of our State hospitals nine years, and with a per capita cost of about \$183 per annum every insane case costs us about \$1600. We pay our Board of Alienists \$5000 each as salary, and the board costs about \$3500 a year to maintain, for it has a stenographer, etc.; but we think we are doing the work very cheaply, since many insane and defectives are deported through the work of our men. If my memory serves me, 238 were deported through the efforts of our Board of Alienists last year, this number including those who belonged to other States. The hospitals keep in close touch with the alienists and whenever cases of insanity are found among newly-arrived immigrants and the suspected people come within the three-year limit, the Board of Alienists ascertains if the patients can be deported by the United States government.

Dr. Wentworth alluded to the different laws in different States. These conditions constitute a grave and serious difficulty, as he said. A person must live in Massachusetts five years before he gains a residence. Now

suppose an insane immigrant comes into New York City, and succeeds in evading the eagle eyes of the alienists on some day when three thousand immigrants are landing. The man is kept in concealment by his friends in some Italian colony in New York for a few weeks and then he is taken over into Massachusetts. He stays there three years and then becomes insane. As he has been in the country longer than three years, he cannot be deported by the United States government. As he has not been in Massachusetts the necessary five years to gain a residence, her authorities rule that he does not belong there, and send him back to New York, because he came to Massachusetts from our State! It is too late for us to deport him; by no construction of law can he be called a dependent of New York State, nor has he any claim on it, yet he must be cared for by it. I have no doubt there are a good many telephonic communications of the nature the doctor describes. We do not want these cases; we do not deserve them; if you must send them to us, you must do it by "the underground method." We do not want to load up our institutions with any more of these expensive \$1600 cases.

I think the best plan for us to pursue is to have a meeting of the authorities of a dozen States, New York, Massachusetts, New Jersey, Connecticut, Pennsylvania and the others, and see if we cannot put pressure upon our legislators and have them adopt uniform laws in this matter, so that if we cannot do any better, we can divide these people between us. We do not care to have them unloaded upon New York, simply because that is the port through which the great majority enter the country.

We employ a number of different nurses speaking different languages, and occasionally we have spent three or four hundred dollars in sending a patient to his home in Europe. In so doing, we always have before our eyes the alternative possibility of a nine years residence with us at a cost of \$1600.

A rather interesting case occurred a few months ago. A deportable patient was not in good physical health, but was willing to return to the old country to his relatives, and they were willing to receive him. After starting, in the care of a competent nurse, he became very ill on the steamship and was under the constant care of a physician all the way over. At the port of debarkation in Europe, it was thought he would die. Yet the nurse and physician took him into the interior of Austria to his friends, and the physician charged only \$25 for a service for which we would gladly have paid him \$150. The patient was delivered at the expense of several hundred dollars and we were saved possibly several times the expenditure. That is the only humane way to dispose of such cases, and it is also economical.

DR. H. M. HURD.—Many feel that in the United States we have not been careful enough in the reception of immigrants to exclude defectives. When in Canada a short time ago I learned that she is now beginning to feel a similar burden by reason of the disposition which has been shown by

some countries to get rid of their dependent insane. Dr. C. K. Clarke told me that last year 262 patients were admitted into his institution at Toronto and of that number 70 persons were immigrants. Most of them had come from England and Ireland.

DR. BANCROFT.—This whole immigration problem is, as we all feel and know, one of the most vital questions this country has to consider in the near future. It has already become one of colossal proportions and how to prevent the defective alien from getting into this country, and then spreading throughout its length and breadth foci for future mental disease, is the problem that vitally concerns us. To anyone who has stood on the landing at Ellis Island and watched the foreign classes that make their landing there and come up the long passageway and go through their brief preliminary examination, it is a remarkable sight, and one is impressed with the apparent difference in intelligence and in intellectual ability in the various classes of foreigners. I was impressed with the striking difference between a shipload of Italians that landed one morning, and in the same morning immediately after they were disposed of a shipload of Swedish and Norwegian immigrants who were brought in. The Italian immigrant seemed to bear on his face a lack of intelligence, ignorance; and the northern races all appeared to possess, judging from external signs only, a far higher degree of native intelligence.

I desire to ask Dr. Ferris from which nationality we are receiving the largest number of mental defectives?

DR. FERRIS.—Austro-Hungary comes first; Germany second; Russia third; Ireland fourth, and Italy fifth, at present.

DR. BANCROFT.—What position does Sweden and Norway take?

DR. FERRIS.—I do not know, but I recall that they furnish a very small percentage. The Finns we generally count with the Russians because those we get are from the northernmost provinces, and in our statistics the Russian Jews, the Polacks and the Finns are grouped together. As to the other Scandinavian races, I am not informed, but the percentage is very small.

DR. BANCROFT.—I have received much enlightenment this evening from Dr. Ferris' paper. I think the general impression in my section is that the largest number of defectives and degenerates come from Italy, a much larger number than I had inferred from his paper is the case. I am rather surprised to learn how free this nationality seems to be when they land in this country from any mental deficiency. I inferred from your paper that mental disease develops after these immigrants have lived in this country under the bad environment and poor hygienic conditions in which they are placed. Am I right in such inference?

DR. FERRIS.—Yes, I believe that is so. The country people badly placed in the cities are the ones who become insane.

TUBERCULOSIS IN HOSPITALS FOR THE INSANE.

By RICHARD H. HUTCHINGS, M. D.,

Superintendent, St. Lawrence State Hospital, Ogdensburg, New York.

The subject of this paper was suggested by the observation that the death rate from tuberculosis is much higher among women inmates of hospitals for the insane than for the men in the same institutions. This condition first observed with reference to New York State was found, upon inquiry, to prevail quite generally throughout the United States and Canada.

During the year 1906, according to the report of the State Department of Health, there were 140,343 deaths from all causes in the State of New York. Of this number 14,027 were caused by tuberculosis—10 per cent. During the same year the State Commission in Lunacy of that State reported 2071 deaths in the State Hospitals for the Insane, of which number no less than 345 or $16\frac{2}{3}$ per cent were caused by tuberculosis.

The high mortality from this cause in hospitals for the insane has long been recognized and the opinion was once held that the insane have a peculiar susceptibility to the disease, but its frequency varies in different institutions and to some extent in the different wards of the same institution, and this fact is one which has helped to modify the formerly accepted belief referred to. Accurate estimates of the frequency of tuberculosis in large public institutions do not often find their way into print but a few may be cited. Dr. Frederick Mott investigated this question with reference to the London County Asylums and found 1.72 per cent of the patients affected. In the year 1904 Dr. Frederick Peterson estimated that there were 500 cases in the State Hospitals of New York, or 2 per cent. At the St. Lawrence State Hospital, in 1906, a careful physical examination was made of the 1732 patients then resident and it was found that there were 78 who presented more or less definite physical signs of this dis-

ease. This is about $4\frac{1}{2}$ per cent. In this examination tuberculin was not employed. In 1905 Dr. Menzies, Superintendent of the Staffordshire County Asylum, England, examined 647 patients, the entire population of that institution, employing tuberculin where necessary, and found no less than 123 or 19 per cent who gave positive signs.

From inquiries made by the writer during the past month, it appears that there are now in the 15 State hospitals in the State of New York, including two for insane criminals, 868 cases of tuberculosis. It is not practical to compare different institutions in that State for the reason that several maintain tuberculosis pavilions to which other hospitals transfer patients for treatment. The average frequency of the disease in the State hospitals in that State is 3 per cent or 30 per thousand of the population, which is probably a fairly accurate statement, obtained as it was, directly from each Superintendent, and should be regarded as representing as nearly as possible the prevalence of the disease in a population of about 28,000 insane persons, but it is conceded to be only approximate because of (as will be discussed later) the difficulty in recognizing the disease in the insane in its early stages.

Dr. William A. White gives in his annual report some interesting figures showing the frequency with which tuberculosis is encountered at autopsy. These figures are of particular value as representing the prevalence of this disease in a large, well-managed public institution, drawing its inmates from all classes of society and from a wide range of territory. His observations cover a period of 21 years and show that during that period autopsies were performed in about 60 per cent of the deaths. In 2102 autopsies the disease was encountered in active form 432 times, or more than 20 per cent, and latent lesions were observed in a still larger number.

There are two equally important sources from which hospitals recruit their tuberculosis: First—the cases which are admitted; which may or may not be recognized at the time, and second—those which develop in the institution. It is not possible to state positively which is the larger class, they probably differ in different institutions. Several of my correspondents referred to the large number of patients afflicted with this disease which were annually

admitted. At the St. Lawrence State Hospital during the last fiscal year, 38 patients were transferred to the tuberculosis pavilion. Of this number 15 were diagnosed on admission and 23 had been resident in the hospital for a length of time, as follows:

Less than six months.....	3
More than six months and less than a year.....	4
One to two years.....	1
Between two and five years.....	3
Over five years.....	12
	—
	23

A certain number who developed the disease after a period of residence doubtless may have had it on admission. This seems probable where the disease became manifest during the first six months or year of the patient's residence, particularly if during that time his physical condition has remained below par, but where it only appears after a year or more of fair physical health the hospital may reasonably be charged with aiding and abetting the disease if not with originating it.

It is impossible in the great majority of insane patients to diagnose tuberculosis in its incipient stage by physical signs. The nice co-operation on the part of the patient to elicit the crepitant rale can rarely be obtained and one may be pardoned for failure to discover even fairly marked lesions in many patients. It is only when coarse physical signs, as consolidation, bronchial breathing, cough and expectoration occur that one can be sure of locating the lesion which may have been suspected.

So important is it to recognize the presence of this disease in newly admitted patients to safeguard the interest of the patient and the health of the household that, in the opinion of the writer, tuberculin should be unhesitatingly employed in all cases where the disease cannot be definitely excluded by physical signs. We have used at Ogdensburg during the last winter the ophthalmotuberculin of Calmette but do not regard it as infallible. With us it has failed to indicate known lesions, and cases are multiplying in literature in which its testimony is misleading. This test, as well as the cutaneous tuberculin reaction, will probably be found in the course of time to be only of value in furnishing presump-

tive evidence of the presence of tuberculosis which may be either active or latent and should be considered in connection with other symptoms and signs which are of known value. In any cases which seem to require it the writer would rely upon the constitutional reaction from an injection of Koch's old tuberculin, employing it as has recently been recommended by Dr. E. L. Trudeau.

Of those cases which appear to originate in the institution it is the experience of the writer that the majority of them develop on the wards occupied by the most demented and inactive patients, and there are other wards in which a case of tuberculosis has seldom or never occurred. There are two detached cottages at Ogdensburg known as the Garden Cottage and Farm Cottage, each accommodating about 70 able-bodied men who are employed in work on the grounds, in which, so far as I can ascertain, no case of tuberculosis has originated in the past 15 years, while certain other wards, among the so-called disturbed and untidy wards, have yielded one or more cases almost every year. The patients of this class because of their mental condition cannot be employed off the wards and for that reason lead a comparatively inactive and an indoor life. These too are the wards in large public institutions which tend to become over-crowded, even when the over-crowding in the hospital as a whole is not great. The fact that the ward is crowded, renders rather urgent the necessity of keeping people in their places. The requirements of good order as understood by the nurses and attendants is to have each patient seated quietly in his place, and to discourage all motor activity. The ventilation in the best of crowded wards is rarely good and when patients spend weeks, and months and even sometimes years in a ward of this character and at night retire in dormitories that are equally crowded, it is not surprising that a number of them finally succumb to tuberculosis. The mere fact of patients being crowded together appears to predispose them to this disease, even where the ventilation is regarded as good and the housekeeping above criticism. Dr. Menzies in a report already quoted, when speaking of his experience with tuberculosis and dysentery says: "Although it is difficult to say how over-crowding can cause disease, provided cleanliness and thorough ventilation are properly

attended to, still the fact remains that dysentery, erysipelas and tuberculosis always increase in over-crowded asylums, and one is driven to the conclusion that infection occurs more easily because patients are actually placed closer together and not because the over-crowding produces less efficient attention to the ventilation and cleanliness of the wards and patients." Those patients who can be employed and who, therefore, are off the ward a portion or the greater part of each day, unless crowded in sewing rooms and shops, are usually in a healthier condition and freer from tuberculosis than those remaining on the wards. As most institutions for the insane have farms or large gardens where patients may be employed, it is comparatively easy to find suitable employment out of doors for men, and difficult to provide work for women except housework and indoor occupations as sewing, rug making, chair caning, and other more or less sedentary tasks. Let us see how the prevalence of tuberculosis differs in the two sexes, bearing in mind this well recognized difference in the employment and modes of life of our hospital inmates. In the period 1888 to 1906, according to the report of the New York State Commission in Lunacy, there were 28,106 deaths from all causes in the New York State Hospitals for the Insane. Of these 15,242 were men and 12,864 were women. Among the men 1463 died from tuberculosis, 9.5 per cent, while among the women there were 2596 deaths from tuberculosis, which is 20.1 per cent more than twice the death rate among the men from this cause. The death rate among the men in State hospitals is slightly less than that of the State at large, among the women it is more than twice as high as that of the State at large, and what is more significant, more than twice that of the men in the same institutions. Inquiries made in other States show that the conditions are virtually the same throughout the United States. In almost every State in the Union the number of cases of this disease among the women greatly exceeds those among men.

The institutions of the South have a great problem before them in their efforts to control tuberculosis among insane negroes, a race among which this disease is much more common than among the whites. To what extent this is due to poverty and irregular modes of living and what to peculiarities of the race I

shall not undertake to discuss, but the fact remains that the death rate among negroes, both in and out of institutions, is high and is on the increase. In certain sections of the South very many of the insane are afflicted with it when admitted to the hospitals. Dr. F. J. Mitchell, Superintendent of the Mississippi Insane Hospital, says: "During the past biennial period our death rate has been unusually large, due we think to the fact that tuberculosis in its varied forms has with us been almost an epidemic, especially among the colored population, which, as a race, is quite susceptible to its influence, but in this institution the disease is almost restricted to the acute form and there are but few in which the duration exceeds four or five months before there is a fatal termination; besides, with the colored we find a much more hemorrhagic type. While it is true that the colored wards are much more crowded than the white, this alone, in my judgment, is by no means the only factor, but there must be a great disparity in the point of susceptibility, and this is greatly to the prejudice of the latter race. For the past ten years we have had infirmaries dedicated to tubercular cases, and with a close observance of the laws of hygiene the results have not been in accordance with our expectations." This opinion is sustained by the voluntary statements of several southern superintendents. Dr. W. F. Drewry, of Petersburg, Va., says: "For the last quarter of a century the prevalence of tuberculosis among the negroes has been on the increase and they seem to succumb more readily than the whites. In fact, in many cases the fatal results come within a few months." "This may be due, to some extent, to the deterioration in their physical condition, to the lack of proper nourishment, to their modern modes of living, etc." Dr. W. W. Faison, of Goldsboro, North Carolina, says: "Tuberculosis among the negro race is frightfully on the increase out of as well as in the hospitals. Many of our patients have it on admission."

In this connection the State of Alabama has given us an object lesson which is as instructive as it is gratifying. Until six years ago the whites and negroes were cared for in the one hospital at Tuscaloosa, which had become badly over-crowded. The death rate from tuberculosis had been uniformly high in both races, notwithstanding that efforts intelligently directed had been made to

limit it. In the biennial report of the Bryce Insane Hospital at Tuscaloosa for the years 1895-96, Dr. Searcy remarks: "Tuberculosis has been one of the most fatal diseases in the hospitals for the insane, as well as among the general population, and we have not been exempt from our share. Since the opening of the hospital about 20 per cent of all deaths occurring have been due to this disease. . . . The disease is more common among women than among men, and more common among the colored than among the white patients. During the past two years especial efforts have been made toward eradicating or diminishing the amount of tubercular diseases in our wards by scrupulous cleanliness of patient, clothing room, etc., and great care in disinfecting and disposing of the sputum and other discharges. The cases have also been, as far as possible, separated from the other patients, occupying rooms with hard finished walls, and prepared floors especially designed for tubercular cases. . . . We are much handicapped in a crusade against tuberculosis by the fact that patients in all stages of the disease are continually being sent to us as insane. Nevertheless the disease, particularly among the negroes, steadily increased in this hospital for several years."

During the two years referred to in this quotation, 1894 and 1895, the death rate from tuberculosis compared with the total deaths was 27 and 22, respectively, for the whites, and 51 and 39, respectively, for the negroes. Though the vigorous measures undertaken for stamping out the disease gave good results in steadily diminishing the death rate from this cause, still in the year 1902 the deaths were 20 per cent and 24 per cent, respectively, for whites and negroes. In that year a new institution was opened in Mt. Vernon for the reason that "The over-crowded condition of the hospital at Tuscaloosa had made it imperative that additional accommodations should at once be provided for the insane." That year provision was made for the insane negroes at the military reservation at Mt. Vernon, and in May they were removed, which gave much more satisfactory accommodation for both races. The result was reflected in the rapidly diminishing death rate from tuberculosis. Within four years the death rate had fallen to 9 per cent for whites and 22 per cent for colored, and according to a report received from Dr. Searcy there are at

present 13 cases per thousand among the whites at Tuscaloosa and 10 cases per thousand among the colored at Mt. Vernon, while of the death rate last year 14 per cent among the whites was caused by tuberculosis and only 9 per cent among the colored, which places the death rate from tuberculosis of the Mt. Vernon Hospital, an institution for the colored insane, one of the lowest in the United States.

There are a few large public hospitals for the insane in which the disease is almost, if not wholly unknown. I may refer to the State Hospital at Provo City, Utah, the Superintendent of which, Dr. Calder, informs me that there is not now nor has there been for the past five years a single case of tuberculosis among the 353 inmates. Practically the same may be said of the Territorial Asylum at Reno, Nevada, where the disease is unknown except for an occasional patient admitted with it, and there have been no deaths from it for several years past. It is interesting in this connection to notice that the altitude of these institutions is 4560, and 4500 feet, respectively, above the sea level, but Dr. Calder adds another significant remark when he says: "In this latitude we are able to have all of our patients, except now and then a bad patient, out of doors a part of each day, almost all of the year. During the spring, summer and fall they spend on an average five hours each day in the open air."

PREVENTION OF TUBERCULOSIS.

It is now generally recognized that among the insane as elsewhere tuberculosis patients should be removed from contact with the healthy and afforded the treatment which is now recognized to be the most appropriate and which can only be given in special structures of one sort or another as pavilions, tents and sheltered porches. To this end no patient should be admitted to the general wards of an institution until the presence of the disease has been excluded. Over-crowding in wards and dormitories should be avoided, and particularly those departments occupied by the demented and inactive classes. The writer realizes fully the difficulty in accomplishing this very evident precaution, but believes that when we can go to the legislature with stronger objections to over-crowding than mere difficulties of administration we will be more

likely to obtain the relief which we seek. All patients physically able should be exercised and when possible employed in the open air daily. When patients are in the wards they should be warmly dressed and fresh air should be admitted through open windows in such quantities as to effectually do away with any suggestion of foul air in the rooms. The clothing worn by one patient should not be used by another until it has been sterilized. The danger here is particularly in the use of shawls, hoods and wraps for the neck. The same rule should apply to the use of blankets and bed linen. Care should be exercised that infection is not conveyed through cups for drinking water. The wards for women, as well as for men, should be supplied with cuspidors of appropriate type and the patients taught to use them.

In the majority of hospitals for the insane of this country some provision is made for the segregation of tuberculous patients during the whole or a greater part of the year. A good number have separate pavilions for the treatment of this class, either in actual use or in the process of construction. Many others employ for this purpose protected porches or tents where the patients sleep eight or nine months of the year. The availability of tents for this purpose for the insane was first demonstrated at the Manhattan State Hospital by the late Dr. A. E. Macdonald and is fully described in the ninth annual report of that institution.

It is worthy of remark that those institutions which have provided separate pavilions or have adopted the use of tents have almost uniformly reported a decrease in the prevalence of tuberculosis in the institutions. Some of my correspondents have characterized it as a remarkable decrease. I have no figures to present except the result of the work of the tuberculosis pavilion at Ogdensburg, which to us have been extremely gratifying. During the first year of its operation four of the patients were discharged from custody, apparently cured of tuberculosis, and three of those cured, recovered of insanity, and the fourth much improved. Fourteen others improved to such a degree that all active symptoms departed and physical examination was either negative or showed only diminished resonance over the affected area. During the second year nine of the patients were discharged from the pavilion to other wards of the hospital as not requiring further

treatment, and five others were returned to their homes in a condition to resume their occupations. During the second year the number of deaths declined from 34 to 19, the lowest in seven years, and tuberculosis which has heretofore occupied first place in the causes of mortality had been reduced to fourth, although during that year several cases of the disease were transferred from other hospitals. During the present fiscal year the death rate promises to be even lower.

DISCUSSION.

DR. HILL.—It seems to me that a paper like this should not be passed over without some discussion. While he was reading the paper there was some confused informal discussion. I got with one ear some whispers of many interesting things. For instance, I heard that on account of a little extra care and attention and dieting, they were surprised at the large number of recoveries from tuberculosis and mental trouble.

I want to ask Dr. Hutchings a question or two myself in regard to the great difficulty he spoke of in making the diagnosis of those patients where we were dependent upon physical signs, microscopical findings and upon the tuberculin test. One of the many difficulties is the tuberculin test, it is not absolutely positive. I want to ask Dr. Hutchings whether he had resorted to the other application of tuberculin, that is its application to the conjunctiva, and if so, whether it was fraught with less difficulty and less risk, and if so, if he would recommend that.

DR. HUTCHINGS.—Dr. Hill's question is rather comprehensive. We have depended in making a diagnosis of tuberculosis not only upon the physical signs, but general symptoms. I think that every case has to be considered on its own merits. Many of our patients are unable to co-operate to bring out the physical signs, and in those cases we have to depend upon the general appearance of the patient, also the weight and presence or absence of night sweats, and other symptoms more or less valuable and reliable. Of course when rales are present they can frequently be detected by physical signs. We have used the ophthalmic tuberculin that Dr. Hill speaks of, but I am unable to speak very definitely about the results of our tests. We find that it was negative in a number of cases where the lesion could be easily detected, and it gave the reaction in a few cases in which we thought it was misleading. I think that the reaction has some merit of its own, and should be regarded as of weight with other symptoms, not possibly diagnostic, but contributory.

DR. H. M. HURD.—One question I would like to ask which I think is extremely important. Is the old tuberculin test a safe one to be applied, unless you have great reason to suspect the existence of tuberculosis? Is either the skin test or the ophthalmic test absolutely safe? Some weeks

ago I met an enthusiastic medical gentleman, who said that he proposed in his institution to apply the ophthalmic test to every patient under treatment, so that he might be sure that he would know those who had tuberculosis and those who had not. I said to him I thought he was not justified in using either test unless he had very strong reason to suspect the existence of tuberculosis.

I have known one or two instances where the tuberculin test gave no reaction upon the first trial, but at the second trial it reacted strongly. My theory was that the patient got an infection from the first tuberculin test. I would ask for the testimony of some pathologist on the subject.

DR. MEYER.—I am afraid I have not very much practical experience with this question, except that of course as in vaccination, and in almost any procedure which entails possibilities of infection, everything depends on how a thing is done; from what source the material is obtained and only under well-controlled circumstances should one proceed to run any risks. That is, one should only do it when risk is practically excluded. Moreover, I would make strictures with regard to the application of the tuberculin test where there is already fair evidence of another sort.

I think in the memory of every one of us, when the first tests were rushed into use by the profession, in 1890, quite a number of our friends who wanted to be among the progressive had to note very serious disasters. I remember the loss of one friend who had a perfectly quiescent hip joint tuberculosis, and the tuberculin tests started a new process, and he lived but a very short time; and more closely in my family, I have had rather a sad experience with regard to the tuberculin test as it was applied at first, but I must say that it is not now used as it was then. If you begin with minimum doses of safe material there is very little risk involved. In the eye tests, too, there are some warnings of harm. It is better to act with a *fair* amount of certainty without risks, than absolute certainty with additional trouble.

DR. PAGE.—We have had some experience with these questions at Danvers; some eight years ago when Dr. Madison was assistant physician the tuberculin test was used upon about four hundred female patients, consecutively, upon admission, for more than one year, with few exceptions. In many cases a second, and in some a third injection was made when previous ones did not react. Dr. Madison summarized his work and published it. From the actual results 40 per cent of all female patients who were admitted to the Danvers Hospital reacted to the test; but he concluded that an error of 10 per cent should be allowed.

Some six years subsequent to those experiments, Dr. Madison having long previously left Danvers, I undertook to follow those cases and was surprised at the very low death rate from tuberculosis. Quite a good number of those who reacted are to-day inmates of the hospital and but few have shown any physical indications of tuberculosis. Some of these cases have

been transferred to other institutions, but reports concerning them have been received and the ratio having tuberculosis is little, if any, higher than with those who remained at Danvers.

For a time we believed that the tuberculin test was to be relied upon to establish the presence of tuberculosis in some form or locality, even if it could not be depended upon to identify incipient pulmonary tuberculosis. But work by Drs. Southard and Gay, in the Danvers Hospital laboratory, upon anaphylaxis, suggests that in the tests at Danvers the first dose may have sensitized the patient, so that reaction to the second or subsequent injections could not be depended upon to establish the fact of previous infection.

Experiments with the Calmette method have been made, but this use of tuberculin has not been satisfactory in our hands.

No harm to patients has been done, but in cases where physical symptoms warranted a positive diagnosis, no reaction was obtained. At Danvers special wards for tuberculosis cases have been erected. If we wait until positive physical signs of tuberculosis can be detected in most cases of chronic mental disease before subjecting them to special treatment in the special wards, we are too late to accomplish much.

It is a matter of routine practice to keep weight charts, and several times yearly a systematic record of temperature taken three or four times daily is made in the case of demented chronic cases and others where suspicions as to failing vitality are aroused. Irregularity of temperature for any length of time is a sufficient cause for a transfer to the ward for tuberculosis, where all have abundant food, with fresh air day and night. In this way we have, I think, anticipated a physical breakdown in many patients. With few exceptions (and those were cases where marked physical symptoms existed), patients thus subjected to a change of diet, hygienic conditions, etc., have shown satisfactory improvement.

I think the safest way to single out pulmonary tuberculosis in insane hospital wards is to keep track of individual temperatures.

DR. MILLER.—I was glad to hear Dr. Meyer's note of warning. I think the article to which he referred was the article of Drs. Rosenau and Anderson, of the U. S. Marine Hospital Service. It appeared in the "Journal of the American Medical Association," under date of March 21, 1908, in which it was shown by the authors that the conjunctiva was rendered sensitive by the application of tuberculin, so that there was a specific reaction to a second installation.

I have been watching with considerable interest the investigations that have been going on at the Cook County Tuberculosis Hospital, located at Dunning, Ill. As a result of these investigations I have the impression that the eye reaction is very much in the air at the present time. Our assistant at the tubercular hospital has tried it on our tubercular patients in the final stages of tuberculosis. His results are far from convincing as to the efficacy of this diagnostic method.

I think the ophthalmic reaction and skin reaction and their value is a question far from settled, and that they are probably not any more positive than the ordinary tuberculin test.

DR. HITCHCOCK.—As to the possible harm in the administration of the ophthalmic test, Dr. V. C. Vaughan, Jr., himself not tubercular, did not react to the ophthalmic test at first. He then submitted to a second administration, and a violent reaction resulted, showing that he evidently became sensitized by the first test. One of our surgeons has written a paper, stating a number of cases which have a few months after a first inoculation submitted to a second injection of antitoxin for diphtheria, and have been proven to have been sensitized by a former administration, so that on the second administration the reaction was most virulent. Dr. V. C. Vaughan, Sr., has done a good deal of interesting work along this same line of proteid sensitization.

DR. HAWKE.—Practically every patient suffering from typhoid fever shows mental symptoms during some portion of the disease. True tuberculosis patients may show mental symptoms, and mental symptoms probably are a part of the disease. We have seen these in our general hospital; in fact, I have examined hundreds of patients with this disease, and I have observed the mental symptoms. According to the last report, Dr. ——— gives a detailed report of the mental diseases in the institute in Philadelphia. A man in Philadelphia a few weeks ago reported the investigations of this test in four hundred children of St. Vincent's Home. The results were not at all conclusive or constructive.

At our hospital we used the Phipps method entirely. We augment this, however, by examining the feces and the excretions, sputum, etc., and wherever possible to isolate or obtain the germ. Rosenberger claims that 90 to 95 per cent of the insane will show tubercular bacilli in the feces, but he also demonstrated that you will find them in the normal individual. So an examination of the feces is not always conclusive evidence, if you do find the bacilli.

Some seven years ago, at the St. Paul meeting, Dr. ——— and I demonstrated a mask which we placed in front of the patient. This mask holds two slides. Many insane patients will not co-operate properly and act just like children, and do not expectorate. We have been able to obtain the fine spray that comes from the mouth in coughing, and projecting it on a slide, we stain the slide in that manner, and in several instances we have been able to get results from this method.

DR. HUTCHINGS.—I merely want to call attention to the remark of Dr. Hurd in reference to the use of the old tuberculin, to say that the bad methods that were in use twenty years ago should not be laid up against this remedy at the present time, when the technique has been so much improved as to practically eliminate all the dangers that were then very

real and easily demonstrated. The matter has been thoroughly worked up in recent years, and by the methods now employed, I have reason to believe the risk of producing the disease in the patients, or lighting up a latent focus, is very much reduced.

It is a question whether we are willing to take the risk in one patient to eliminate the possibility of introducing the disease into a ward of fifty or one hundred healthy patients. In other words, it is highly important that we should be able to know as soon as possible where every bit of the disease is lurking so that every patient may be protected.

As for administering it after we have strong suspicion of the disease, I think it is unnecessary. When a patient is in a condition that you strongly suspect tuberculosis, it is a very good practice to treat him as such.

HEREDITY. AN ALLEGORY.

By DR. JAMES T. SEARCY,
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There is said to have been a town, which was called a progressive, an up-to-date town, within whose limits there was a bluff or precipice, over which a great number of the inhabitants were continually falling.

There grew up gradually a number of persons in the town, called physicians, who assisted by nurses and others made it their life-work to aid the unfortunates who fell over the bluff. It was singular how many other kinds of persons became interested in and derived a living from these misfortunes of their fellow-citizens; for instance, there were undertakers, grave-diggers, coffin-makers, sextons, and the like. The people, through sympathy, built great hospitals, and ran ambulances to gather up the unfortunates. Hospitals for the insane, colonies for the epileptics, schools for the feeble-minded, and reformatories for the wayward and inebriates, were built and equipped. Drug stores grew and flourished on the corners; immense factories for making remedies, also.

In many ways the town gained great reputation for its progress, its liberal contributions and its noble charities.

Finally one of the doctors looked up from his work and drew attention to the fact that it would be good policy to place a fence on the top of the bluff to prevent so many falling over.

At first he attracted little attention, but the strenuosity of his assertions finally drew some favorable comments; but numbers arose to oppose his suggestions, principally with the plea that "the business interests" of the town would be impaired; some intimated "the works of Providence" would be interfered with. Some of the other physicians were selfishly dilatory in helping, or indirectly opposed to the good doctor. The makers and venders of alcoholic drinks and of "dope" mixtures, many of the patent medicine men and food makers thought the fence would rule them out and opposed it; and so did the keepers of dives and places of

low-repute. These formed strong combinations to prevent the erection of the fence.

Besides this, there seemed to be a great indifference on the part of the inhabitants to learn of those principles of heredity, which, as the city grew wealthy and civilized, pointed more and more to a steadily increasing hereditary inability of the people to stem the tides and currents which drew them to the precipice. It became evident that lineal deterioration was a principal predisposing cause of the accidents. The back-country had to fill the vacancies left by the wholesale eliminations of city families. Deterioration even seemed to be in proportion to the apparent wealth and prosperity of the town. In many instances, it looked like it would be necessary to set the fence one, two or more generations back from the brow of the precipice.

Increased efforts, however, were made at the foot of the precipice; more money was spent and more applause was given to the charitable work that was rendered. A singular mock modesty and unnatural prudery prevailed and tabooed, as impolite and indecent, talks and instructions along lines of race deterioration and race improvement. Legal sensuality took position behind prudery and refused to be disturbed. The insidious silent agencies of lineal degeneracy had almost the whole field to themselves, unrecognized and unmolested.

Sometimes, a parable or an allegory is an apt way to draw attention to a subject. I have used this allegory, in some shape, possibly, familiar to you, to illustrate the subject for to-day's general session, before persons many of whom are doing such generous work at the foot of the precipice. It may serve to point to the principal direction whence comes so much of the unceasingly accumulating material, on which they expend their labors.

HEREDITY.

I. DEFINITION AND EXPLANATION.

Heredity is the transition of habits-of-action along lines-of-descent.

A line-of-descent is technically called a *PHYLUM*, and is the continuous living substance, which comes along time, through succeeding generations, acquiring habits of more or less excellence, adjusting itself to its changing environments. A com-

plete continuity of living material composes the phylum. It is important and necessary to recognize the fact that there is no break in the living structural connectedness anywhere. A phylum, from this standpoint, may be studied as a whole and looked upon as a living entity of itself. The study of the phylum, as a living whole, constitutes the principal feature in modern science regarding living things.

The habits, with which the continuously connected phylum is endowed, present two features: the one is structural or morphologic; the other is functional or physiologic. We witness the phylum, as it passes through the stages of succeeding generations, has habits of assuming parts, organs, structures, forms, shapes, colors, which are peculiar to that phylum alone. This is its morphology. At the same time, the cellular structures and organs, which are assumed, all have functions peculiar to themselves, and, in the aggregate, peculiar to the individuals of the succeeding generations. This is its physiology. Morphology and physiology always correspond with each other, and belong not to individuals alone but to their phyla.

In non-sexed animals there is a single line-of-descent or phylum. In sexed animals, two phyla of two parents coalesce. Two genetic cells, one branched from each parent, when they coalesce, carry into the combination the habits of the multiple ancestral lines which compose them. The two parental phyla have to belong to the same species, that is, possess similar morphology and physiology, else their genetic cells cannot coalesce; nevertheless, in the multiplied ancestral combinations of the same species, there come along, necessarily, variations, which occasion, in their transitions, minor differences in the offspring of the same parents. Normally, no two children are exactly alike, largely for this reason.

Normal variability is a property of the phyla, and is a characteristic of all living things. Ability to vary, to suit changing environments, is a necessity for living continuance. Living continuance, in the changing environments of succeeding generations, is the object of effort on the part of every living thing. Many are eliminated because they do not properly adjust. There are, therefore, naturally and expectedly from their complex compositions and their adjustments, some minor variations in the offspring.

In the vicissitudes and competitions of life, the general tendency of the agencies, which compose the environment, is to eliminate phyla. The only way for phyla to prevent it is to make continual effort through generations to adjust, which modifies their morphology and physiology slowly. For this reason, effort, and effort alone, in the way of profitable exercise, makes strength and improvement of morphology and gives capacity and ability of physiology. There is no stand-still level of rest and idleness as long as environments change. A cessation of effort, in the length of a single generation or of several, begets a decline of abilities. This makes a constant observation of the rising and falling of the capacities of individuals, families and races. Necessity to live is the mother of effort and of improvement. When and where there is no necessity, effort generally stops and deterioration of ability sets in. This is notoriously an observation.

The four things, air or oxygen, water, warmth, and food, are "the necessities of life." Every cell in the body has to have these things constantly provided for it, or it cannot live. The same general necessity exists for the whole man. The first object of every living thing, man included, is to obtain "these necessities" from its environment. Air and water are so abundant, little effort is required to obtain them. Warmth, in the shape of clothing, housing, artificial heat, and some kinds of food, is harder for man to obtain—"costs" more. Nutritive food is by far the hardest to obtain; there has to be a daily supply of it; it costs most effort. The accumulation of wealth and property is really and fundamentally an accumulation of an excess of these "necessaries of life," or of a means of obtaining them. This makes the accumulation of wealth, property, or any negotiable article, like money, such an object of effort on the part of man.

It is easy to divide the body, particularly "the nervous system," into two important departments; the one relates to the outside, the other to the inside of man. We may name one of them the psychic department; the other the sub-psychic.

The center of the psychic department is the cerebrum or its cortex; the center of the sub-psychic are tracts and regions in the base of the brain, the medulla, cord, and lower ganglions.

The primitive object of effort of the psychic department is to obtain "the necessities of life" from the environment; that of the

sub-psychic to prepare and distribute them throughout the body. The separateness of the departments is illustrated in sleep, in anæsthesia, and in other "unconscious" conditions; when the functions of the psychic department are suspended and those of the sub-psychic continue to go on. The success of anæsthesia consists in holding the chemic action of the ether at that point, and not giving enough to suspend the action of the sub-psychic centers. Although separate in larger part, these departments are connected by nerve lines so they are "sympathetic" the one with the other. Beneficent or satisfactory action in one affects the functions of the other favorably; and so are disturbing acts transmitted in injurious effect from one department to the other.

All nerve centers receive informing action into their sentient structures, from one direction, and emit in another the results of their adjustments, of which latter faculty there are all grades corresponding with the grades of the centers. The work of the sub-psychic department is sub-conscious, in equilibrating and adjusting the actions of the internal organs, which relate, principally, to the preparation and the distribution of the "necessaries of life." I need not refer to other functions, such as those that relate to the removal of waste material, or the continuance of the phylum into the next generation. All functions are under nerve center control, in the sub-psychic department.

Belonging to the psychic department, on the one side of its central cerebrum, are the several organs, of seeing, hearing, tasting, smelling and other sensations, with afferent nerve lines bearing information into its posterior tracts, while, not quite so distinctly located, are the tracts of the anterior portions, which send mandates to all the voluntary muscles along efferent lines. The voluntary muscles can be included on the emissive side in this department. The posterior tracts may be said to learn through the senses, while the anterior ones execute through the muscles the results of the ideation and reasoning that have gone on intermediately. The function of the cerebrum, which is conscious mentality, in this way, is tripartite in character; it learns, reasons, and executes.

The psychic department of the body is far the most important portion, and its morphology and physiology are as much matters of heredity, according to the transitions of phylal habits, as are

those of the sub-psychic; with possibly more variations attached to them. In the transitions through the generations, the abilities of the psychic department are seen to vary greatly. It varies in its abilities—in its receiving sense organs, in its central cerebrum, and in its large bulk of voluntary muscles. In its nerve lines and brain centers, such is the exceptional delicacy of its structural morphology and its functional physiology, liability to harm and injury is exceedingly easy and of most serious import. Its functions too improve and decline naturally and readily, in their capacities and abilities, in the life of the individual and the line of his generations. Normal phylal deterioration of psychic abilities is a matter of frequent observation; by which we mean certain children are not as mentally capable in an all-round way as their parents or their ancestry. In others, we witness all-round improvement of psychic abilities.

All the cases, which flood the field of psychiatry, as mental deficient and defectives, are morbidities, or exhibitions of morphologic and physiologic abnormalities, of the psychic department, and deteriorating heredity accounts for a large proportion of them. The larger part are the results of "predispositions" of phylal habits, and are not acquired in the generation in which they appear. They may have remained latent and afterwards been brought out.

II. IMPORTANCE OF THE SUBJECT.

If we had an expert, whose opinions would be reliable, whom we could employ to grade the mental qualifications of the persons, who compose a family, a community, or a race, and have him place upon a black-board the figures representing his estimates, so that those of the same grades would fall in the same horizontal lines, I judge, we would see his black-board arrangement gradually assume a triangular shape, although its outlines may not be strictly straight. We would see the figures of the more and most capable filling the space above the middle line in diminishing lengths to the apex; and the less and least capable in lengthening lines would occupy the lower portion of the triangle. Some triangles, representing different aggregates of persons, would be higher; some lower; some wider; some narrower; and, I judge,

if we made our estimates after intervals of time, we would see the contours of our triangles constantly changing. The communal changes would occur because the inherited, phylal level of any one generation would be the most important factor in determining the grade reached; and this changes from time to time in the aggregates as well as in the single phyla.

We often hear it asserted that if all the young persons of a community were subjected to the same excellent environment of training and of education, they would make equally successful and ethical citizens. Environment-makers are usually loud in such assertions; they "have the floor" in public attention. Everywhere we witness such assertions do not prove correct. There are great differences in the out-puts of the same environments. The best training and education do not ensure uniformity; and, I think, it is a correct observation, that the inherent inherited traits and capacities of the young, and others, in acquiring knowledge and making use of it, and in appreciating and observing rules of rectitude and propriety, are more factors in the final results, than the agencies to which they have been subjected. Of course, it is a great advantage to a person to have him placed in an environment where good training and education are abundantly administered to him, but his own inherited abilities to take advantage of its advantages, to profit by his surroundings, are the most important elements in the grade of his success. These cannot be imparted to him. Great irregularities appear everywhere because of irregularities in inherited traits and abilities. Great attention is properly given to the making of the environment, but little or no attention is given to the making of the inherited man—the most important factor of the two.

I have already alluded to the natural division of mentality into three parts—that of learning, that of reasoning, and that of executing; which divisions are well suggested by the structural morphology of that whole department and by the localization of the cerebral functions, so far as they have been discovered. Men, and races so far as that goes, differ in their capacities in each of these departments. The simply erudite scholar, for instance, excels only in learning. The wise competent man is good in all three—he learns, he reasons, he executes excellently. The man, with

"common-sense," learns, reasons, and executes in a profitable, practical way. These traits are phylal; they cannot be imparted by the schools; they are inherently inborn.

III. NORMAL PSYCHIC HEREDITY.

I have said that the contours of the triangular diagrams, representing the psychic abilities of different races of men, would be found to alter themselves from time to time. The variations in the phylal psychic abilities of races explain a great deal of history. True histories of peoples will be written some day, showing the reasons for the risings and fallings of their psychic barometers at different times, and citing these levels to show the reasons for their successes and failures in different periods of their histories.

In the earliest history of the world there lived in Assyria in western Asia a people, who at that time were probably the most civilized in the world. Somewhat later there was another center of civilization in the valley of the Nile. About this time, there arose in central Europe a high order of men, who were capable, digressive and progressive, although rude and crude. Some of them went into Asia; others of them came south into the peninsulas of Greece and Italy. The Greeks were nearest to the advanced centers of the day and appropriated their civilization first; they in time deteriorated by natural processes, and were overrun by the competitions of others. The Romans next took the field, "conquered the world," and civilized to the highest degree from what they obtained; in time, their phylal abilities deteriorated, when the Goths and Vandals poured over the mountains and submerged them. Some Moors and Jews came along the north coast of Africa and in Spain, with Cordova as their capital, kept alive the "light of civilization" during the "dark ages." They took their turn in the same processes of deterioration. All the obtainable histories of the countries of Europe and Asia furnish illustrations of these same principles. The Africans, from the remotest antiquity, have had the civilizations of more advanced countries of Asia and Europe and Egypt accessible to them, along the valley of the Nile and down both coasts, but have never been able to appreciate or appropriate them. The islands of the Pacific are apt illustrations of races civilizing to the different levels of their psychic abilities. European civilization has been presented to them in very much

the same way and at about the same time. They have accepted it and now maintain it at their different psychic levels. The Japanese show their high grade by the readiness and the alertness with which they have appropriated the civilization of Europe.

Races and nations "civilize," individuals "train and educate," in accordance with the same general principles. The grade of their phylal abilities, coming along to them in any one generation from the preceding, is the most important factor in determining the levels they reach; and these qualifications change from time to time. Abilities improve and decline. All histories, individual and racial, go to show the importance of the subject of heredity. No subject is more worthy of investigation, and the transition of improving and of declining phylal abilities of the psychic department, in particular, is the most important part of it all.

IV. ABNORMAL PSYCHIC HEREDITY.

I have been speaking of normal differences of psychic abilities in individuals and in the lines of their phyla. By normal mental differences I mean those that are natural, usual, customary, expected; but there are aberrances that are quickly noted as unnatural, unusual, unexpected, abnormal. There are many kinds of them and all grades of each kind. They promptly attract attention and concern; they particularly interest this Association.

The functions, as I say, of the psychic department of a man relate to the outside of him. The emissions that are sent out from his brain are, therefore, open to outside inspection. Others observe them and judge them. We have to have an expert to tell us of the condition and capacity of a man's heart, lungs, liver, kidneys or stomach, but everybody claims to be a judge of his brain's condition and capacity. To judge others in these particulars is a constant habit of us all. Every man claims to be a judge of "the mental and moral" qualifications of others, and prides himself on the correctness of his opinions—on being "a good judge of human nature." This is a necessary habit, so necessary it has become an instinct—children do it. It is vitally important for us to know the mental qualifications of those with whom we are associated.

When the exhibitions of a man's mental characteristics are such as are natural, usual, customary, expected, we say he has a normal brain; when they vary from these characteristics, we say he has

an abnormal brain. The normal exhibitions of a man's mentality are constant matters of observation, study, and opinion; but abnormal exhibitions promptly become matters of greater interest; they most generally become matters of concern. Not only are his own safety and welfare affected by such exhibitions; but the safety, comfort or welfare of ourselves and others often become involved. Mental abnormalities are promptly noted and mentioned.

We obtain our opinion of others not only from our own observations, but there is a constant exchange of opinions going on among us; and a person is always interested in the exchanged opinions of others about himself. He is concerned about "the reputation" he bears. He resists with jealous zeal all derogatory opinions about himself. Indeed, opposition to derogatory opinions is so positive and decided, that it forces them often into an under-current of social exchange; and they are so opposed, that the State has had to reserve to itself the right to declare when the man has reached such a grade of mental disqualification as to require attention and interference. This leads us readily to an understanding of what such legal terms as "insanity," "idiocy," "non-compos," "lunacy," and the like, mean; they refer to such grades of mental abnormalities as bring them within the cognizance and jurisdiction of the law; which, at once, implies there are milder grades which do not deserve such appellations or such attention. These attract attention. Although the persons affected claim legally to be normal, they are known not to be so. The technical term, *PSYCHOSIS*, has recently been invented to cover all grades of mental abnormalities.

It is easy to understand how psychoses appear, most readily, in those phyla, whose psychic departments are deteriorating in the tone of their morphology and physiology. In this way such abnormalities are often looked upon as hereditary. Faultiness of structure and function, anywhere, is most easy to appear in deteriorating lines. Accidents, injuries or diseases in the psychic department can happen to the excellent, but they occur most often and most readily to the deteriorating. They may be so often repeated as to become a matter of phylal transition. This, however, is exceptional. A deterioration of general health, in a person and his posterity, tends to bring out any inherited deficient or defec-

tive morphology and physiology in his brain, as well as other organs. Lineal "stigmata of degeneracy," of all kinds, indicate a tendency to defectiveness, which may involve the brain. In this way deteriorating heredity affects the whole field of psychiatry.

The question of "public health" is a most vital one, for many reasons. Whatever conditions tend to deteriorate general health, let down the cerebral abilities along with the rest. "The committee of one hundred on public health," recently organized in this country, have in hand a question that affects as much as anything else the nation's life and prosperity. It is a vital subject on which to give public instruction and to which to draw the attention of the general government. Public health and public capacity run together to a great extent.

A large proportion, the majority of mental aberrances can be looked upon as lateral accidents along the lines of phylal deterioration. They exist most numerous in those sections and in those classes where most phylal deterioration is going on. Normal down-grade heredity and impaired abnormal psychic heredity affect every public question.

V. DEGENERACY.

It is a fact not often noticed, that most of the phyla, that succeed in being born into any one generation, do not go through it into the next. They are eliminated. The principal cause of this is phylal deterioration, which incapacitates them from continuing themselves in the midst of the dangers, diseases, accidents, competitions and vicissitudes of life. Most of the children that are born die early; many others die before they reach adult life; and many adults for many reasons fail to continue themselves. If we allow six children to the mother, a very fair number, it would increase the adult population three-fold in each generation, if all lived to adult life. Excess of population naturally brings its own remedy.

The first object of effort, on the part of the psychic department, is to obtain the necessities of life from the environment; the man has "to make a living," as he calls it. The next most urgent object is to continue his or her phylum into the next generation, for which there is an appetite or hunger almost as impelling as

those for the other necessities. It is necessary for phylal continuance, and has to be reckoned with and considered in all social work.

The cares of the mother, continuing as they do, not only through the helpless part of the youngest child's life, but through the growing lives of several, confine her to one locality and more closely to that part of parental labor than they do the father. He is at large, to do competitive and digressive work. The mother's psychic department, by reason of her sex, is specialized for maternal work, and, when naturally occupied, she has neither the time nor the qualifications for obtaining, from among the competitions of her environment, the necessities of life for herself and her children. They ought to be provided for her. The psychic department of the father, as a concomitant of his sex, is more specialized for combative, competitive, aggressive, digressive work. In this way, there are mental characteristics peculiar to the sexes—the woman conservative, the man digressive. In the best portion of a race's progress the women are womanly and men manly.

In the education of the young, I think, training and instruction should follow the indications of nature. When the children are young and alike, the same methods and subjects of instruction can properly be pursued, but when the adolescents put on their sex changes, subjects and methods of education should diverge. In coeducational schools the young women generally select studies suited to them. For the good of the race, however, each should be especially trained and directly instructed for its phylal specialty.

Those races do best by whom these psychic characteristics of the sexes are most respected. They are strongly involved in the principles of monogamous matrimony. By this social method phylal capacities are best improved. "The conservation of the family," always judged a most desirable social object, is, of course, best obtained by strict compliance with monogamic principles. Father and mother should jointly devote themselves to their children. With a strong instinctive sense for the safety and maintenance of themselves and their children, the mothers of the land are always the most strenuous advocates for the principles of monogamy. The best phylal interests of any family, any commu-

nity, or any race are strongly concerned in their observance. A laxness in adhering to them tends towards and indicates a decline in phylal abilities and qualifications. Race improvement and race deterioration run along with those of the families of the country. The few who hold places in the upper levels of our racial diagram should continue their phyla. The "ideal American family," commendably mentioned, has brains in it as well as children. Our president draws attention to its necessity for the country's good, and to its diminishing frequency.

As I have described them, the objects of effort on the part of the psychic department first relate to obtaining the necessities of life from the environment; next, to continuing the phylum into the next generation. Another object is, to improve self-abilities, so as to render one most capable of success in the adverse circumstances of life. An educational environment is, therefore, good. Psychic abilities, to acquire and learn, first appear in the child and they mature faster than reasoning or execution. We take advantage of this and use the first third of the person's life for teaching and training. By practice, we do, to some extent, improve his inherited psychic abilities—particularly in learning.

Another object of psychic effort is to improve the environment. This is by far the most complex work; and as the efforts to improve the environment become further and further removed from self and include others in their scope, they become more and more altruistic and complicated. The complexity of this kind of work requires the highest order of psychic abilities. Qualifications for this work are naturally estimated and valued highest. Altruism, including all efforts to improve society, begins in the family and extends out from it. To direct the improvement of the family, of the race, or of humanity, requires the highest, broadest psychic abilities. Races differ in their appreciations of this kind of qualifications. The science of sociology rests upon it; and so do law, morals and government.

It is easy to see that in the transitions, through generations, of phylal morphology and physiology, those of the sub-psychic department are naturally more stable, less variable, than those of the psychic. The most variable part of the man, in his phylal transitions, are his psychic qualifications; consequently, this part

of his heredity deserves the most study and attention. Every public-spirited person, every environment-maker, should be interested in the improvement of the psychic abilities of the phyla of the individuals, who occupy his country and compose his race. This more depends upon heredity than upon environment. Human progress, eugenics, stirpiculture, race-improvement, whatever you call it, goes upon two legs, heredity, particularly the heredity of ability in the psychic department, and upon environment; the philanthropic devote all their attention to the environment, the other leg deserves attention.

VI. IMPROVEMENT.

Race improvement is the earnest desire of every public-spirited person, or should be. To simply improve the environment, within a country, does good, but only partial good to phyla. No special attention is paid to phylal improvement. It generally goes at loose ends. I have already intimated that if the figures, representing the mental capabilities of the members of a race, were placed upon a black-board, the arrangement would assume a triangular or pear shape, widening out with the greater numbers of the less and least capable towards the base and narrowing with the fewer more and most capable to its apex. The contour of such a figure would alter from time to time. Race improvement would increase the numbers above the middle line and alter the contour of the triangle in that way. Our diagram would, however, continue to be triangular in shape, and when, simply by sanitation, hygiene, improved medicine, and a more abundant provision of the necessities of life, the general bulk, or the size of the triangle, would be increased, because of its always triangular shape, those lines towards the base would increase most and fastest. The first apparent object of civilization is to set an equal valuation on all human lives alike, and the prolonged continuance of human lives is the first object of effort. This is the principal reason why the more civilized a country, the more multiplied become its deficient and defectives, and the greater the demand for charities. Very little is done to prevent the naturally greater increase of the numbers below the middle line. The upper levels do not multiply, they generally degenerate. Race suicide begins at the top.

This is a most perplexing question, a most difficult one to solve and control, humanely. The ignorantly and purposely uncontrolled natural appetites of the large majority in the lower levels tend to oppose and thwart race improvement. To increase the numbers in the apex of the diagram is far the most important. These people have capable brains in their heads whether they have education or not, whether they have riches or not, though they generally succeed best in getting both. While they are capable these phyla should continue themselves.

Phylal decline comes easily—where there is no effort and because of no effort; phylal improvement is difficult—it comes only with effort and because of effort.

In this country by improved sanitation, better medication and surgery, better living, and more abundance of the necessities, the average length of human life has been raised to approaching forty years. This is accomplished not so much by putting more into the ranks of the old, as by bringing up the more numerous short-lived, from childhood into adult life; where they propagate their kind. They naturally become the most numerous when protected from elimination. The subject of heredity has never yet been properly taken up. By all our civilization, it is true, however, that we do not undo nature's methods very much, of eliminating most in the lines in the lower half of the triangle, for notwithstanding all the efforts of wealth, education, abundance, or humane sentiment, these phyla go "down and out" fastest. We hold them and multiply them; but natural laws still prevail, until they eliminate the whole race, sometimes. Whole races have been blotted off the map of the world by failing to prevent degeneracy in the upper levels and by failing to continue themselves, when high grade.

Some legislation has been obtained, looking to the prevention of the increase of the mentally "abnormal" by preventing their marrying. This, of course, does some good; but it affects only the extreme grades, who naturally tend to elimination rapidly. More numerous milder grades, declining in abilities, are not interfered with. They are not yet legally abnormal, consequently they increase. Some would have us unsex the inmates of penitentiaries and insane hospitals. This would have a hardly appreciable effect in the next generation; such classes are re-

cruited, in the very large majority, from all deteriorating classes in society, rich and poor, aristocratic and plebeian. It would be impossible to place such surgery where it would do most good.

Proper and laudable attempts have been made of late to increase general information on the subject of phylal continuance. There is serious need for such instruction, properly given. How to teach sexism, or phylal continuance, to the "innocent," has lately become a theme for discussion among the educators of the land. I do not believe the subject can be more properly approached, because it is the method of nature, than by teaching the truths and principles of biology. Phylal continuance is the living thread that holds that whole study together. It can be illustrated throughout all living nature, in showing phylal continuance and sex methods, by gradual approaches from the lowest forms to the highest, in a way to give least offence to usual ideas of propriety. This method works practically in the schools very well, where it has been tried. It removes all mystery, and correctly instructs natural inquisitiveness, which all half-grown children have, in a legitimate way.

In the transition of phylal morphology and physiology, it is said, with considerable degree of plausibility, that there is a tendency in the passage from one generation to the next for the sexes to alternate; that is, for the male of one generation to become female in the next, and vice versa. This leads to an equalization of the numbers of the sexes in the succeeding generations; and while, in the phylal coalescence, there is a quite equal combination of psychic habits and traits, a slight excess or preponderance seems to alternate with the sex; so the sons of one generation most favor the fathers of the mother's family tree, and the daughters most favor the mothers of the father's tree. There is much in this generalization.

Direct injury to the psychic department of man, in its grand cerebral center, is widespread in the land, occasioned by the injurious use for luxuries of some agents, that are known in medicine as anodynes and anæsthetics. A general awakening of public interest is broadcast over the country on this subject. Prohibitory laws in one shape or another to stop the extension of their use are enacted in all the States. The anæsthetic, alcohol,

stands first, because its injury is most pointedly cerebral. The anodynes, caffen, nicotine, cocaine, codeine, morphine, and the like, all, however, when repeatedly used do brain injury, and tend to develop into a serious abnormality any inherited tendency or predisposition to mental aberrancy, that otherwise might remain latent in a person. They all produce neurasthenia and cerebraesthesia, of which over sensibility is a symptom, in those who use them. The so general use of such agents, too, in society is begetting, as a phylal trait, a peculiar neurasthenia or cerebraesthesia, which to use a slangous word we may call the "dope-diathesis," affected with which, by heredity from "doped" ancestry, the person is never comfortable unless "doped" in one way or another. He is born "feeling bad," and takes readily to the habitual use of anodyne and anæsthetic drugs. Race deterioration and race improvement are largely interested in this question. Those of us, who work in fields, into which come the mentally deficient and defective, are more readily cognizant of these facts than others. It is a good and propitious time to tell "the scientific aspects of the alcohol question" and of others similar to it, particularly as they relate to the grand center of the psychic department.

I have not time to speak longer on the subject of heredity. I hope I have drawn such attention to it as will indicate its importance. Scientific instruction on heredity—particularly psychic heredity—is sadly needed.

DISCUSSION.

DR. HILL.—We are particularly fortunate in the last moments of our session to have two such interesting papers presented, and we can carry home with us the memories of Dr. Meyer's paper and Dr. Searcy's paper, placed in such delightful position together, one dealing with the mental factors in insanity, and the other with the influences of heredity. In these two things we have the whole study of practical psychiatry. The effect of the mental disturbances upon an organization is due to its power of susceptibility, and the part of heredity is so apparent to all that when we take these things into our minds we have food for thought and reflection.

This subject is very interesting to me. For a long time I have endeavored to observe and measure the toxicity of any given substance, and in these conditions I have found very frequently that a great departure from the normal condition of physical health is a constant source, a constant cause of disturbance, and I have found that such patients as we have in our hospitals, who are always disturbed and excited, will show great toxicity and

very likely high blood pressure. If the blood pressure is too high, reduce it and the patient becomes quiet; so, while on one hand I noticed that, I have also demonstrated to my own satisfaction that degree of toxicity, degree of tissue metabolism or elimination need not be the cause of the disturbance in a given case. The degree of toxicity is always due to the degree of toxicity plus the resisting power. I have put a healthy, susceptible individual alongside the disturbed individual, and I have found that the healthy person under the same circumstances suffers no more than a slight indisposition. Another susceptible person is thrown into a violent disturbance. This is an exceedingly interesting topic and I am sorry we have not time to discuss it.

DR. BANCROFT.—It is a misfortune that Dr. Searcy's very interesting contribution came so late, because I think it is full of fruitful suggestion, but the lateness of the hour necessitates our proceeding with the program.

HYDROTHERAPY IN THE TREATMENT OF THE INSANE.

By GEORGE STOCKTON, M. D.,

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In taking for my subject hydrotherapy in the treatment of insanity, I am aware that I have assumed a considerable contract, especially in the limited time at my disposal. I can only hope to touch on some of the most salient points. I am more particularly interested in reading this paper for the purpose, if possible, of encouraging discussions, that we may be able to glean new ideas which may be useful to us in adding to our apparatus and technique.

It is only a few years ago that a well-known author, writing on the subject of hydrotherapy, made this statement: "Although vast strides have been made in the development and use of hydrotherapy in the treatment of nervous and mental diseases, but few State institutions in this country are supplied with the proper apparatus for using this most valuable adjunct to what is known as rational therapeutics." The value of this agent in the treatment of mental disease must certainly have been appreciated of late, for many of the State institutions in various parts of the country have hydrotherapy equipments. In Ohio, a number of institutions have excellent facilities and others are installing them. That we are behind some foreign nations along these lines cannot be gainsaid; some of the German universities give special courses in physical therapeutics, and much time is devoted to the teaching of hydrotherapy.

Too much attention cannot be paid to treatment in our institutions for the insane. Of what value is a brilliant diagnosis if nothing is done to improve the welfare of your patient, or if you do not use every effort to bring about a cure? Why cannot we expect that remedies may be discovered and methods devised that will relieve and, yes, cure many of these unfortunates? Whenever an institution is run merely for the custodial care of the in-

sane, and no effort made to study and classify cases, it does not rise above the dignity of a county infirmary.

We all know the value of fresh air and sunshine in the treatment of tuberculosis and other debilitating diseases. The use of water as cleansing agent and as a therapeutic adjunct is along similar lines.

One great drawback to the advancement of hydrotherapy is that for many years it has been almost the exclusive property of the quack. Such individuals started institutions largely for commercial reasons, and this most valuable remedy was in most instances used without discrimination or method. Is it to be wondered that physicians looked askance at the so-called water cures, where many lives were no doubt endangered by the ignorant application of this remedy? The medical profession is broad enough to take advantage of any agent used logically that can be applied to the cure of disease. Osteopathy, so called, is massage applied in a hit-or-miss way. Christian Science is suggestion applied in such a way that it influences the mind of susceptible people with fanatical religious proclivities, and very often individuals who are not of a very high mental organization.

It is a deplorable fact that many people are careless in regard to cleansing the body and do not realize the importance of this remedy in enabling the system to resist disease. The story is told of a physician who recommended baths to a patient, and was astonished to get this reply, "Well, doctor, I don't know as it would make any difference, yet there has not been a drop of water on my body for twenty years."

It is believed by most people that hydrotherapy can only be applied in hospitals. While it is true that hydriatic measures can be administered in hospitals and institutions especially fitted with apparatus for the purpose, modern plumbing has made it possible to have a very fair outfit in private houses.

Hydrotherapy applies not only to the external use of water, but to water taken internally, and where it is used for cleansing certain accessible organs of the body. It is almost a universal rule with us in the treatment of melancholia, especially the agitated form, to wash out the stomach. Many of these cases come to our institutions in a miserable condition—emaciated, tongue heavily

coated, breath offensive, sordes on the teeth, etc. You find similar symptoms, as you well know, in other forms of insanity, particularly in mania, and in some forms of dementia præcox. In many instances the stomach becomes so sensitive that it will retain nothing, and the patient, on account of negativism or certain delusions, absolutely refuses to take food. By introducing the stomach or nasal tube, the stomach can be washed out thoroughly with some disinfectant solution; repeat the operation as often as necessary. You will soon be able to introduce small portions of nourishing food, and in a very short time it will be retained by the stomach without much difficulty, the mucous membrane assumes a more healthy tone, the appetite returns, and your patient is soon well on to improvement and very often recovery.

Hydrotherapy to-day is largely administered on a physiological basis. Water exercises a very important influence over the circulation, the respiratory organs, and the nervous system, also a pronounced effect upon the blood pressure. It may be stated in a general way, that cold applications raise the blood pressure, and warm applications lower it. We all know how readily the action of the heart is influenced by the application of warmth and cold. The warm bath increases the rapidity of the pulse, which persists for some time after the bath.

Almost every organ in the body is in reflex relation to the adjacent skin, and many with remote portions; this is the rationale for the application of counter irritants, poultices, etc.

Among the laity such savory and odorous articles are used as coal oil, onions, etc. Fortunately such agents are rapidly going out of favor; up-to-date physicians know that the same effects can be accomplished through the application of heat and cold, by means of compresses wrung out of water at a proper temperature, with electric pads and other appliances.

Among the effects obtainable by water may be mentioned the following: Tonic, sedative, anastomotic, eliminative, diuretic, expectorant, antipyretic, antiphlogistic, hemostatic, hemagogic, analgesic, vaso-dilator, constructive, etc.

A single energetic hot bath leads to the loss of a considerable amount of perspiration. We know that this diaphoresis influences the circulation of the blood and lymph, and morbid products are

eliminated. This is the great desideratum, and a most valuable remedy in certain forms of disease. Poisons may be eliminated from the body, such as mercury and lead, bacterial toxins and pathogenic micro-organisms also.

Neurasthenia is closely allied to insanity; indeed some authors classify it as a psychosis; the importance of hydrotherapy in the treatment of this disease cannot be overestimated.

M. Beni Bardae, the French author, recommends hydrotherapy in the treatment of neurasthenia as follows: Begin with a spray bath at from 92 to 99 degrees F. The spray should be applied for some time along the spinal axis, but care must be exercised to guard against sudden shock, and one should endeavor to dispose the patient toward sleep. The douche lasts from four to eight minutes; if it lasts much longer the patient is liable to be excited rather than soothed. The back is first sprayed, then the anterior surface, finally the limbs. Two baths a day should be given until the nervous agitation has ceased. This may take a considerable period of time to stimulate the organism. The temperature of the water may be reduced gradually during the process of the bath. Any tendency toward reaction may be relieved with hot water. If the heart is affected, only the lightest application of a stream of water over the chest is allowable.

In the treatment of neurasthenia we have found that various forms of baths have to be used to fit the individual cases; the conditions change frequently and the treatment must be applied accordingly. Electric-light baths, followed by gradual cooling, usually leave a feeling of well-being. Neutral baths which are administered at about the normal temperature of the body are very valuable. If the patient suffers greatly from insomnia the bath should be given at night. Many of this class of cases improve under hydiatic treatment where we have had absolutely no benefit from drugs. These patients should be impressed with the fact that results cannot be obtained at once; sometimes weeks elapse before anything seems to have been accomplished.

In our outfit we have the Turkish and Russian baths, electric-light cabinet, sitz, perineal spray, foot bath, local electric-light appliances, constructed so they can be used on various parts of the body for the purpose of producing localized hyperæmia, massage

tables, wet and dry shampoo tables, electric bath and distributing outfit bearing upon the apparatus for needle, shower baths, etc.

One great objection to the use of bath-rooms is the stale odor which permeates the atmosphere, especially when they are crowded and heated with steam pipes. We are able to overcome this by having a large fan run by an electric motor. Connecting with the room in which the fan is located is a large duct made from sewer pipe; from an opening in the floor of each separate bath-room, a small duct extends to the large one. When the fan is running the vitiated air is being constantly pumped out and the rooms are more pleasant and habitable.

The care of the chronic and infirm class is much easier and more satisfactory by having proper facilities within easy access; the patient is better contented and happier.

One enthusiastic author writes that instead of isolating the chronic insane, he manages them in open wards through the systematic use of prolonged baths and packs. At first the patients were kept in the bath at a temperature of 98 to 100 degrees F., from one-half to three or four hours; later, in some cases, the time was extended to from 12 to 14 hours. He claims that the patients not only improved, gained in weight, slept better and became quieter, but that they were also able to dispense with the use of drugs. Bathing fortifies the individual to resist disease, stimulates the vital functions and hastens the throwing off of poisonous material from the system. A cold bath stimulates all the nerve centers.

I doubt if it is advisable for everyone to take the cold bath, as the Englishman is said to take his morning plunge, unless the person is very vigorous and the bath is followed by energetic rubbing. Water, when too cold, applied unexpectedly to a large surface of the body, is a severe shock, and care should be used in its application. At the proper temperature, and adapted to the individual, it adds to the nervous energy, stimulates the functions of the body, and improves the person's resistive power against disease. The kidneys act more vigorously; the fact that the urine is found to be more toxic after a bath is abundant proof that baths assist in the elimination of poisonous material. It stimulates respiration and so eliminates poisonous matter. The use of baths in no way interferes with the medical treatment of patients; properly

administered they largely increase the efficiency of many drugs and do not interfere with any. The warm bath renders the surface of the body less sensitive, numbs the terminal nerve fibers, and produces a sedative action. Whenever you have delirium, restlessness and insomnia, the neutral bath is indicated.

At Morris Plains it was found that a wet pack or full bath at from 95 to 105 degrees F. was very useful in excited cases of insomnia. In some cases of mild excitement with confusion, the use of the wet pack will often assist to restore the normal condition.

Baker reports the employment of hydrotherapy in 26 cases of melancholia, with or without agitation, dementia præcox, hysteria, puerperal insanity characterized by slowness of thought, painful delusions, etc., cases showing lack of nervous and muscle tone, sluggish circulation, loss of weight, greasy and acne-covered skin, intestinal fermentation and other complications. The baths in these cases are used for various periods, depending of course on the case. He reports decidedly good results; quieting of agitation, gradual disappearance of delusions, and physical improvement were the rule. He sums up his results by saying that hydiatic measures are valuable adjuncts to hygienic and medical measures.

In our outfit we get good results from the wet pack. A sheet is wrung out of cold water, and placed on a table prepared first with a rubber sheet and blanket. Place the patient on the couch and pull the sheet over the body, then bring the blanket up on both sides and tuck it in around the person; a cold compress to the head and warmth to the feet is proper; straps may be used to confine the patient to the table if needed. In many cases the patient quiets down and sometimes goes to sleep in the pack. We use baths in almost all forms of insanity. To produce elimination we usually prefer the electric-light cabinet. In many instances disturbed patients will become frightened and resistive if placed in a Turkish or Russian bath. The patient remains in the cabinet until in a profuse perspiration. He is then placed on a table and washed with water at about 102 to 105 degrees F. The attendant then soaps the patient carefully and gives him what is known as a Swedish shampoo; after being thoroughly rubbed with soap he is put into the rain bath, and the spray is used at a temperature of

from 100 to 102 degrees F. The patient is allowed to gradually cool off in the rest room, and is through for the day.

Our operators find the neutral bath and pack of great value in the treatment of cases of mild excitement and restlessness accompanied by insomnia. A sheet is wrung out of water at anywhere from 93 to 97 degrees F., the patient is enveloped in this and then wrapped in a light blanket; this sheet fits so closely to the body that it is really a mild form of restraint. The neutral bath is administered in a large bath tub, which completely submerges the patient; he can be kept in this as long as is deemed necessary. We tried the continuous bath in one case. The patient was in the bath about three weeks continuously. For a time she seemed to improve, but she had a relapse, and we were obliged to discontinue the treatment on account of lack of room. We are, however, so favorably impressed with the method that we are arranging to equip two rooms for the purpose of treating cases by this method.

The salt glow is a favorite procedure with our woman operator; she takes a salt known as butter salt and places it in water at about 60 degrees F., then applies the mixture freely to the back and chest, then the arms and limbs, rubbing vigorously; the spray and douche are then applied the same as after a Swedish shampoo.

In my opinion, hydrotherapy cannot be properly applied unless the physician has skilled operators to carry out his directions. While, as a rule, a medical man should have general supervision, and should be capable of prescribing certain baths indicated in various forms of insanity, nevertheless a great deal of latitude should be allowed to those who administer the treatment. A physician cannot always foresee the effect of different kinds of baths on the individual any more than he can predict in all cases the action of certain medicines. Bath attendants who understand their work soon learn to recognize unfavorable symptoms when they arise, and are prepared in many instances to meet emergencies.

In preparing this paper I have drawn from numerous sources for information. I will not attempt to enumerate all. I am especially indebted to Baruch's work on hydrotherapy and to articles by the late Dr. Dent, and from officials connected with Morris Plains State Hospital.

DISCUSSION.

DR. PAGE.—I would simply say that we began to use hydrotherapy quite a while ago. We use it to some extent. We have used it lately, more especially the continuous baths, sometimes having as many as six or eight patients in the continuous baths at the same time. I have nothing now to add to what has been said.

DR. BANCROFT.—I would like to ask Dr. Stockton if, in the treatment of the acute cases, he has noticed that some become soon accommodated to the use of the bath, and then cease to respond to the beneficial effects? For instance, in cases of excitement, usually sleep will be procured for the first administrations; then soon the patient gets accommodated apparently to the treatment, and the bath ceases to have its hypnotic effect.

DR. STOCKTON.—I think that is true generally. The effect does not continue so positively for any great length of time. I believe that patients get accustomed to the effects of baths like they do to anything else. In spite of this fact we give the baths for quite a long time.

DR. BANCROFT.—In my own experience I have found that the bath is sometimes very efficient; one of the most effective hypnotics I have ever used, but I have noticed that after two or three weeks administration, it ceases to have the beneficial effect it did at first, the patient seeming to become accommodated to it, as is often the case with drugs.

A STUDY OF SOME PHASES OF FAMILY PSYCHOSES.

By JOHN GERALD FITZGERALD,

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This study was undertaken with the view of ascertaining if possible whether any relationship existed between the varieties of mental disturbance arising in members of the same family, whether a psychosis arising in several children of the same parents would be the same in the various children and whether the children would develop a psychosis which would in its chief characteristics take a place with the mental disease from which the parent had suffered.

If it is true, as has been suggested, that certain individuals and families have definite mental diatheses even as they have a physical body of a certain make-up which is peculiarly susceptible under unfavorable conditions to the development of disorders that are more or less characteristic, enabling one to say in advance that a member of a given family is liable to develop rheumatism, heart trouble, cancer, etc., similarly one should be able to say in advance that a member of a given family is likely to develop a mental disease of a certain type. The exact etiologic significance of the hereditary predisposition or the inherited weakness and the liability of the chemical machine to be disturbed by unfavorable influences in the environment are not clearly understood; and since it is so, speculation is rife in regard to these matters.

One of the chief difficulties in a study at the present time is brought about because of the transitions through which psychiatry has passed and is passing at the present time. The variability in the terms used to describe conditions which are often of a similar character, and at times the use of bare descriptive phrases which leave one in doubt, all make it extremely difficult for the investigator to be sure that what he is dealing with would correspond with his own view of the given condition.

I have thought that in order to give as clear and at the same time as concise an account of this study as lies within my power it would be well to deal with the material as I have gone over it, leaving any conclusions or inferences until a little later. The literature on the subject has not, for the greater part, been accessible to me and I am uncertain whether the fundamental features which I wished to investigate have been the subject of earlier studies or not. The cases herein described have been patients in the Provincial Hospitals at Toronto and London, Ontario, and I believe that had I been able to study the question in an institution where the admissions were from more circumscribed districts where the admissions often come from comparatively few families these results might have been different.

The first group with which I wish to deal briefly is made up of the patients F. S. and W. S. F. S., the father, is at the present time sixty years of age, a farmer by occupation; he was admitted to London Asylum six years ago, but in that time has been well enough to return home and work, or at least live outside an institution for ten months, at the end of which time it was found necessary to have him returned. We learn that the patient has been unsteady in his work for the past ten or twelve years; that he has been erratic, has neglected his duties, would not attend to his work on the farm, was irritable and childish, had vague grandiose ideas and would skip and jump with a pole by the hour after the manner of a child. The family physician who had the patient under observation for many years stated: "He has always shown evidences of insanity, but has been much worse of late." So we learn that the patient we now see a cross-section picture of, has suffered from a deteriorating psychosis for many years. In his present mental status we find distinct evidences of the end stage of dementia præcox where the intellective processes are not greatly interfered with. As McDonald has recently pointed out, a careful scrutiny of many terminal cases often fails to reveal the profound mental deterioration and disintegration that is anticipated. This is just what was found in the case under discussion. The patient was very manneristic in speech, showed a marked degree of childish apathy and indifference, stereotypies, a ready adaptability to his environment and evidences of old hallucinatory expe-

riences. In the light of our present knowledge and following the precepts of the Kraepelin school it would seem that if we are to attach a distinguishing mark to the disease from which he is suffering, we must regard the case as one of dementia præcox, as the characteristic features of this condition persist and are readily observable all through. The patient is now over sixty years of age. From his history we learn that there is a distinct taint on his paternal side: two cousins having been insane; the nature of their psychoses was not ascertainable but we were able to elicit the fact that a paternal cousin committed suicide. Here then we are in a better position to understand the unfolding of the next chapter, as illustrated by the psychosis in the son W. S., with whom we shall now deal. It might be noted that the patient's mother is said to be in good health, has shown no evidence of mental weakness and her family history is clear.

The son, W. S., is at present twenty-seven years of age and has only recently been committed, but on going into his history we learn that for the past eight years the present condition has been developing, so that a change was evident to his relations. From the patient whose information has proven to be very reliable, it seems probable that even at an earlier date the disease was manifesting itself. His very early history was negative. He was of a shy disposition, never fond of meeting people, although he showed nothing especially abnormal at this time. When at school he made fair progress and took a keen interest in sports; later on, however, when at high school he made a considerable effort to keep abreast of his class and here his low resisting power commenced to show itself. It was soon evident that the strain was too great and when about nineteen years of age he tried an examination that was about equivalent to university matriculation; he was unsuccessful and spent the following year at the same work with a view to rewriting the examination. As time went on it was apparent that the patient instead of being better prepared was actually less fitted than he had been a year previously to undertake the work. Recognizing this, he gave up the struggle and did not even try the examination. From this time on the history records a gradual deterioration; there first came a diminution in the breadth of his interests and a falling off in the quality of what he performed, a gradual increasing apathy; at the same time we

learn that he had very well preserved insight and often used such expressions as: "I am anxious and apprehensive of the future." At this time, it should be kept in mind, the patient's father was an inmate of a hospital for the insane. After leaving school he endeavored to take up work on the farm, but because of the constant presence of a mild, apathetic indifference, he did not succeed and he was considered an idle individual lacking in ambition. He developed no bad habits, was quite temperate, as his father had been before him, and also had a negative sexual and criminal history. A little later his indifference grew to the extent that he no longer paid the attention or gave the care to his personal appearance he had formerly done. He would go about unwashed and unshaven and his whole bearing gave still further proof of his indifference. He grew tired of his failures on the farm and decided to seek broader fields and pastures new. He went to a large Western city where he was for a time employed at some laboring work. Becoming somewhat more ambitious again, he registered at a business college, but at the end of one month was forced to leave because of shortage of funds. He went home finally and from this time the psychosis developed rapidly. Patient says that after this he never seemed able to even approximately attain his ideals, that he was gloomy and fearful of the future, but with it all his friends tell us apathy pervaded the picture and was the characteristic emotional coloring. He was able to remain about home for nearly three years more when his power of adjusting reached low water and it was found necessary to have him committed because of impulsive tendencies which he sometimes displayed. He carried a loaded revolver about with him and had threatened to use it in order to facilitate his adjustments with the neighbors in the immediate vicinity.

On admission the most pronounced symptom was his indifference and he showed very little intellectual deterioration. He had a good grasp of events of the present in the outside world. School knowledge was fairly intact; this with the general fund of knowledge at his disposal permitted of his giving a very interesting account of his past. Further he impressed everyone with his remarkably well-preserved insight. He was rather childish, spoke in a slightly affected manneristic fashion, displaying only a slight amount of voluntary activity, and his spontaneous thought

production was limited, but after he had been sufficiently stimulated he could be induced to proceed with his story. He showed some stereotypies but no evidence of hallucinatory experiences or any elaborated delusional fabric. His general reaction so strongly suggested that of his father that all who had observed both patients clinically commented on it. Apart from this, however, we have the fundamental features in the psychological analysis the same in both cases, in both comparatively slight intellectual deterioration with marked indifference and other evidences of a slowly deteriorating disease process. From this we are led to the conclusion that the son is suffering from dementia præcox and one is most inclined to regard the case as belonging to the hebephrenic variety, whereas the father, because of his vague grandiose delusions and ideas of reference, was no doubt of the paranoid type. The strict differentiation of the varieties, however, seems not to be essential when we are able to deal with the fundamental features. The similarity of the symptom-complex in these cases of father and son was most striking, and were it not that the time is limited I would like to dwell further on several points because the histories were so complete, the necessary questions so fully gone into that they have carried very considerable weight and have led to certain conclusions which I hope to mention later. I am convinced after a thorough consideration of both cases that the psychosis will proceed more rapidly in the son than in the father. The earlier onset in the son shows the likelihood of this happening, and it is probably a further expression of nature's desire to rid herself of the unfit and a demonstration of an inexorable biologic principle. The next case, with which I wish to deal somewhat more briefly, serves to exemplify to a greater degree what has already been said. I have purposely gone into the first group at considerable length in order that when I come to deal with the great mass of cases I shall only indicate the members of the family and state the nature of the psychoses from which they are suffering.

H. J., a male patient, age at the present time sixty-five, is a case of depression coming on in the involutional period, probably about the age of fifty-eight or a little earlier. Presenting many of the features of those cases described by Farrar under the name of depressio-apatetica, he did not give evidence of the presence

of subjective certainty, the elaborated religious delusional fabric of the true melancholiac. Nor did the patient show the angst feature which colors some of the cases and led the above mentioned writer to regard it as probable that a certain group might be classed as anxious pre-seniles. This patient at the present time is fairly adaptable and except for the possibility of a suicidal impulse might almost be taken care of at home. He could not be regarded as nearly well, however, and the prognosis seems unfavorable. In this instance going back one generation we learn that patient's father was a farmer, and a local Methodist preacher, but patient is very certain that his father's sense of religious justice was tempered with mercy and that he was moderate in his religiosity. When about sixty-two years of age the patient's father developed a mild attack of depression extending over a period of six months just preceding his death. The character of this depression was very similar to that of the patient but differed in certain particulars. It developed later in life and was of a shorter duration. It was not so severe at the time of his death as it had been at an earlier period. The patient himself, as a young man, showed nothing that would have led any one to believe that he was likely to develop a psychosis. He was a total abstainer as his father had been, was a careful farmer and made a good living. He is modest, and states frankly that he was not "the smartest of men." He was a class leader in his church for thirty years. Had a good reputation in the neighborhood where he lived, being regarded as an honest man and a fairly good farmer. For many years he had worked a fifty-acre farm and had evidently found this to be just about all his physiological capacity would permit of. Later on when his family were growing up he found it necessary to enlarge somewhat, and bought a farm of one hundred and twenty-five acres. This change in the usual routine and the extra work involved in the transaction caused him to worry a good deal and the strain proved almost too much. Just at this time family differences arose, and the result was that the patient developed the psychosis which has been briefly described. Just one other feature in connection with his mental disease. He made a suicidal attempt, but it was not well thought out but much like the suicidal attempts of these cases of pre-senile apathetic depression, which differ very materially from the usually success-

ful attempts of the patient with melancholia vera. The patient's family consisted of five children, and of these five, three have already exhibited evidences of mental disease and have required hospital care. Two have recovered sufficiently to again take up work on the outside, but the third and youngest of the three is still an inmate of a hospital for insane. I wish just for a moment to point out some of the features of these cases in the third generation. The eldest of the family when a woman something over thirty years of age commenced to show signs of mental alienation, and as in the case of her grandfather and father, showing no early peculiarities, had been up to the level of others in her station, working hard and making a living as a cook. After her father was sent to an asylum she left her position and applied for a place in the institution where he had been sent for treatment. She worked there for a time and although the quality of her work was only fair, it was probably no worse than her training and early environment would have led one to expect. The work at the institution after a time did not seem to suit her, so she resigned and accepted another position in an adjacent city where it would still be possible for her to visit her father regularly. The strong bond of affection between this patient and her father was always evident and this is to be remembered because the work at her new place and a constant endeavor to see her father frequently, were assigned as possible causes of her breakdown; it was thought she was working too hard. She at first showed some depression but along with this developed many delusions largely allopsychic in character. She also appeared to be deteriorating somewhat and the hospital physician was uncertain whether the case would prove to belong to the maniac-depressive or the dementia præcox group. The former diagnosis was somewhat favored, because she showed considerable improvement; marked apathy and indifference did not develop, and although patient had a history of having been mute and resistive, this cleared up entirely, and she was considered well enough to go home on probation and later was discharged. It was not felt, however, that she was entirely recovered or that she had quite returned to the condition she was in before her trouble developed.

The next of the family, now a man of thirty-one years, had a psychosis when nineteen years of age and was in an institution

for one year. At the time of his admission he had vague ideas of reference, occasionally showed considerable emotional instability and was also occasionally impulsive. For a few months it was thought to be a deteriorating psychosis but later he began to improve, took an interest in his surroundings, began to work well and at the annual sports of the hospital was successful in winning one of the races. His improvement at the end of the year was so marked that he was allowed to go home on probation and a short time later was discharged. He was considered recovered because he was able to remain at home to take up his work much as formerly, and his relations believed he was well. This patient has remained out for seven or eight years but it has been ascertained that he is not quite well at times and on one occasion it was believed it would be necessary to again send him to the hospital. The diagnosis, as in the case of his elder sister, was in doubt, the same possibilities being considered, but the weight of evidence points somewhat more strongly to dementia præcox. The third patient in the third generation is almost a type case of hebephrenic dementia præcox. He is twenty-one years old and is a type of a mild deterioration psychosis, where the negative rather than the positive predominates. In the consideration of this family, it seems to the writer that certain indications are evident as in the previous one. From a mild non-deteriorating or only slightly deteriorating psychosis in a grandparent, we travel down the scale to a pronounced, typical deteriorating disease process in the fourth child of the third generation; the first child in this generation showing less marked evidence of mental enfeeblement but the second child more nearly still approximating, and finally the last child developing, a psychosis of a typical deteriorating character. So that while there appears to be a similarity in the form of mental disease that various members of one family develop, there is also a gradually increasing tendency to the development of a type where pronounced mental enfeeblement develops comparatively early. That this is invariably the case, I do not believe, and where several members of a family, whose ages closely approximate one another, develop psychoses, it not infrequently happens that an older member of the family may show more pronounced mental weakness than a younger member of the same family. In such cases as D. E. and T. E., brothers, aged respectively twenty-four

and thirty years at the time of admission, this was well illustrated. Both were cases of catatonic dementia præcox and showed most pronounced stereotype movements, similar in character. Other features were also similar, except that the deterioration was somewhat more profound in the elder of the two. It is an interesting corollary that a sister who is insane and who was twenty-one at the time of admission, while showing some fundamental symptoms in common with her brothers, was much more active and did not show so clearly the family reaction type. However, she could be put in the same group of cases, with the same unfavorable outlook.

The succeeding group of cases to which I wish to refer, is another illustration of what has already been spoken of. The early history of the antecedents I was not able to get fully, but learn that there was a maternal history of mental disease and one positive fact was ascertained, that one of these progenitors had committed suicide in the involutional period. The mother of the immediate family was said to have been a fairly normal woman but the inherited predisposition was evidently exaggerated in the descendants. Firstly, because the father and mother were second cousins and secondly by the alcoholic habits of the father. The eldest child is now a man of fifty years of age and a patient in a hospital for the insane. His early history was not eventful, he was bright and clever at school and was always well up in his studies. After leaving school he was given a farm by his father and this he worked for many years. Owing to his alcoholic habits, which he early acquired, he was more or less unsteady in his work and changed from one place to another. He was always able to make a comfortable living, however, and showed no change in character or disposition until about forty-five years of age when he became suspicious. This for a considerable time was all that was observed, and being only a slight allopsychic disturbance, no special notice was taken of it. Later the quality of patient's work began to deteriorate, emotional instability became pronounced, alternating excitement and depression, with at times some irritability. The most pronounced change, however, was in patient's religious activity; he read the Bible for long periods and was greatly influenced by what he read. All of these things would

probably have passed unnoticed if patient had not developed hallucinatory experiences of the auditory variety and to these he reacted strongly. He would frequently run away from home to avoid the imaginary individuals who were threatening to mutilate and otherwise torture him. His memory became defective and this in conjunction with his active fallacious sensory perceptions and the superstructure of persecutory delusions led to his being committed. His mental examination revealed the fact that he was suffering from a chronic alcoholic hallucinatory psychosis and that there was a fair degree of mental deterioration. He was childish, showed pronounced impairment of associative memory and was completely lacking in insight. The next member of the family, now a woman of forty-eight, is also a patient in the hospital in which her brother has been for some time.

Her earlier history, too, is negative; she is said to have done so well at the primary school that her parents had decided to give her the advantage of a collegiate training, and this very fact may have been of etiologic importance, suggesting overstrain, because she had only reached the age of twenty-two when she was no longer able to adjust herself to her environment in the outside world and her reaction indicated that she was suffering from some form of mental alienation. The change was chiefly affective, there was some growing indifference and a pronounced narrowing of interests, and there was also some modification of the ethical sense; furthermore, there was a vague history of hallucinatory experiences. Patient gave up her usual work, but her friends were able to care for her at home for many years. Finally when about forty years of age, because of the rapidly advancing deterioration, it was necessary that she be given institutional care and treatment. The next two members of the family have to date been immune and have not suffered from any form of mental disease. The youngest, however, was not so fortunate and is recognized as being feeble-minded, in other words showing the lowest type of mental disturbance exhibited in three generations. This individual's parents were aged forty-four and forty-two, respectively, at the time of her conception, so that all the usual factors seem to be accounted for. Here, then, we have the history of a family where in three generations we descend in the scale of mental dis-

turbance from a depressive episode with suicide to profound deficiency as seen in the imbecile child of the third generation, and the descent is particularly well illustrated in the generation which has been dwelt on at some length. From a patient with a chronic alcoholic psychosis not coming on until he has almost reached the fifth decade, we see the next member failing to reach the third decade and the last one born in an impoverished mental state.

The succeeding series serves to again point out one or two features which have already been observed. The first patient is at present eighty-seven years of age and was an inmate of a hospital for the insane for only a short period, although his eccentricities and unusual character have always been the talk of the neighborhood in which he resides; ever since his twentieth year he has been known by the name of Hallelujah Brown, this having been conferred on him because of his rabid fanaticism. Theoretically his vocation was farming, but his avocation was preaching the gospel and selling patent medicines. The work on the farm was always sacrificed for the avocation, although it was with increasing difficulty each year that his family were kept together and provided for. Finally, when between seventy and eighty, his wife had him committed for a short time owing to his increasing childishness and to his absolute inability to adjust himself to his surroundings. His stay in the hospital was not a long one, and after being discharged he continued at his work of ministering and healing. His wife was a woman of low type, but hard working and conscientious. The first two sons were healthy, have always made a good living and have displayed a fair amount of initiative. One is a successful farmer and the other is a mechanic. The youngest son, now aged twenty-five, born when his father was sixty-two years of age, was less fortunate. It was early recognized that his mentality was not strong, and when about eighteen years of age he began to display criminal propensities, and still a little later developed persecutory delusions of a sexual character. On admission to the hospital, the diagnosis of paranoid dementia præcox was made on a basis of congenital defect, mild deterioration being present. The patient was susceptible to treatment along the lines of occupation, etc., and soon reacted less frequently and with less emotional disturbance to his delusions. For some time he accompanied

his father in his journeyings and assisted in the religious exercises. The paranoid tendency was manifested in the son at an earlier date than in the father and was probably present to a marked extent only in the son whose conception occurred in the sixth decade of the father. The other sons were born when their father was between thirty and forty years of age.

The manifest tendency, in some instances, to the development of similar clinical types in different members of the same generation of one family is seen in the next group. Here on the paternal side there is a history of an aunt who was feeble-minded. The father showed no pronounced abnormalities, but the mother, while an active, energetic woman, displayed many eccentricities. The first two members of the family which resulted from this union have both developed a psychosis. A daughter much younger has also become insane, while four other members of the family are able to earn a living and adjust themselves to their surroundings. The first patient, a man of fifty-six, is a case of paranoid dementia præcox with only a moderate amount of deterioration. The second is a man of forty-seven with much more pronounced deterioration, the clinical features being the same as in the previous case; and the third is a case of hebephrenic dementia præcox, in whom the negative features predominate, and a slow, progressive deteriorating process appears to be going on.

The seeming tendency in succeeding generations to more pronounced deterioration is present in a group which may be dealt with briefly. In the first generation the patient suffered from a depression in the involutional period; the daughter, being the representative of the second generation, likewise suffered from depression, while the patient in the third generation is suffering from dementia præcox. I have one other example where an attack of depression coming on in the sixth decade in the father appeared at exactly the same period in the son, and the manifestations, as far as could be gathered from the history of the one and personal observations of the other, were almost the same. Fortunately in this instance there was no third generation.

The frequency of a family reaction type I have observed again and again. As an illustration: Two sisters, both of whom I have observed, were cases of paranoid dementia præcox in whom the

delusional fabric was altogether of a religious character. They showed the same general reaction, the amount of intellectual deterioration in many directions was only slight, and in both the ability and desire to continue at some useful manual work was manifest.

In an analysis of fourteen groups where two or more cases occurred in one generation of the same family, the clinical features were invariably the same in the same families. In other words there was apparently a decided tendency to a definite family reaction type, so that all the cases were easily assignable to given groups. This was most evident where the clinical features suggested the mental disorder which we at present designate dementia præcox, the fundamental features being a steadily progressive deteriorating process characterized by affect dementia, stereotypes, mannerisms, with the addition of various other symptoms depending upon the variety of the disorder. In two groups where there were four members of one family of the same generation, dementia præcox was the diagnosis in every instance, and in this family there was a history of mental disturbance in the immediate antecedents. In other words, in the majority of cases where the eventual result was pronounced mental enfeeblement, heredity or mental disturbance in the forebears was present. Maniac-depressive insanity showed a distinct tendency to appear in several members of the same family where there were a number of members of one generation of the same family who were insane, and this was a further corroboration of the tendency of families to show a characteristic reaction type. In one instance where there were five members insane, all were cases of dementia præcox, and all were diagnosed as of the hebephrenic variety. This uniformity in the clinical features in the different members of the same family in one generation was apparent time and time again. Where there was insanity in one generation, and the type of disease was not essentially of a deteriorating character, mental disease manifesting itself in the next generation was more likely to be a deteriorating psychosis in the later rather than in the earlier children of the one time insane antecedents. Several illustrations of this were found where one or other parent suffered from maniac-depressive insanity, the first or second child suffered from

the same condition whereas younger children suffered from dementia præcox.

I do not feel justified in this very brief review of a broad subject in coming to any definite conclusions, but certain features seem suggestive:

1. There is an evident tendency, where several members of the same family of one generation become insane, to show a fairly uniform reaction type, so that it is possible to classify these cases as belonging to one given clinical group.

2. There is also evidence to show that with succeeding generations, a psychosis occurring in each generation, there is a lowering of the reaction type and a likelihood of deteriorating psychoses developing, and still further from the original antecedent a probability of gross defectives appearing.

SOME DATA IN REFERENCE TO INSANITY IN THE RURAL DISTRICTS.

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The subject of my paper I suspect will be regarded by this body as unique, and perhaps may be looked upon as too sectional to be presented at a convention representing the entire continent of North America, particularly as it is confined solely to the existence of insanity in the rural districts of my own State. My apology, however, for introducing this subject for your consideration has arisen from the fact that I have been requested by your committee who have in charge the arrangement of papers to briefly set forth my observations during a long term of years of the condition and characteristics of the psychoses which are existing among our people who inhabit the sparsely populated sections of the State. Covering a period of two decades, more or less literature has been written upon this subject emanating from industrial and civic organizations, and citizens who are investigating into the social and material characteristics of our people and their attendant environments. There is a general prevailing belief that, because of the necessarily existing isolation, insanity is more prevalent in the rural than the urban districts of the State. It has been asserted that because of the objectionable conditions subsisting in the homes of the farming community of this section, which largely withdraws the opportunity for social intercourse and intercommunication, that mental disease is more frequent, particularly among the housewives, and I have been frequently interviewed regarding this contention by parties who were to present essays before various social and literary societies. I apprehend that because of these statements and the recognized fact that reclusion and lessened opportunities for diversion tend more frequently to excite morbid mental processes is one of the prominent reasons why I was requested to prepare this paper.

Maine has an area of more than thirty thousand square miles and while not among the larger States of the Union, yet because of the fact that its soil is so well adapted to the growth of timber of various kinds, more than one-half of its topographical extent remains a forest. While the pristine monarch of the forest, the original pine, has nearly all disappeared under the woodman's axe, a heavy growth of spruce has taken its place, with the exception of vast ridges of oak, beech, birch and maple of large growth, which as yet has largely escaped lumbering operations. Frequent computations and estimates have been made by lumber experts as to the probable yearly growth of this large forest area, and it has been finally determined that the annual increase will aggregate more than five hundred million feet per annum. Inasmuch as the above estimate practically covers the annual cut, it will be observed that the conditions and environments of the inhabitants of these sparsely populated districts must remain *in statu quo* for many years to come, particularly as the Supreme Court at a recent law term has handed down a decision that it is within the province of the legislative bodies to enact such laws as shall control the wanton destruction of the forests, and determine the limit in size beneath which the growth shall not be disturbed.

These thinly inhabited sections are located very generally upon the principal water courses and the inhabitants are engaged very largely in producing supplies for the lumber camps. It is true that as the lumber sufficiently large for operating has been put into the market along the main water courses, necessitating following up the branches and encroaching upon the various lakes at the head waters, the farming operations have followed that of lumbering: hence there is constantly becoming a much wider area covered by the farmer and his family, who are practically bereft of all opportunities for diversion or intellectual and social intercourse.

Another consideration of great magnitude which it is proper for me to mention incidentally at this time, and which is of large financial importance to the citizens of the State, is the fish and game interest. Under these conditions every effort is being made to keep our forests intact, and in consequence of these endeavors much more economy will be practiced in the direction of preserving the

forest, and in looking after the growth which is left standing. Every effort is being made to continue such conditions as shall subserve the best interests of game, and to hold untrammelled the wide extent of forests which now exists, so that with the present sentiment that controls our citizens throughout the State, the opportunities for intercommunication so essential to maintain healthy mental influences must be denied and it is probable that the same provisions which now obtain must remain permanently. The consideration of the efforts to ameliorate these existing conditions among the inhabitants of this section in what is already being accomplished and such suggestions for the further well-being of this class as may be carried into execution will be mentioned later on.

I will briefly call your attention to the deplorable physical and mental environments of the hermit in endeavoring to eke out a miserable existence in extreme solitude. He is invariably discovered in the most sparsely settled communities or in the dense forest, and his condition when apprehended is generally such as results in committal to our hospitals for the insane. Because of disappointment in his marital or domestic relations or loss of property or from other causes the individual has become embittered, and he abhors intercourse with his fellow men, so in order to rid himself of society, he retires to live a miserable life where the bustle and stir of civilization cannot reach him. From such unsavory environments we can expect but one alternative and that in the direction of continued mental enfeeblement and degeneration. Not a few of this class are apprehended in their hovels suffering from abject poverty and committed to the institutions year by year. The clinical observation presents marked degeneration and sometimes delusions of suspicion which point to the diagnosis of paranoia which was evidently typical before intellectual subsidence. As a rule there is but one result which ends in dissolution. There are observed quite frequently phenomena not unlike that which presents itself in senility. They chafe under the new condition similar to that which is found existing among the extremely aged, who are often from premature advice taken from their homes to be placed under institutional treatment, and who under these new environments usually succumb early to their mental and physical infirmities.

The recluse has passionately longed for solitude to rid himself of the disgust which he entertains toward his fellow men, and when his desires are fully consummated he is not unlike the pilgrims of olden times, who subjected themselves to every sacrifice to the end that they might enjoy their long-sought Mecca.

Another condition which has been existing for several generations calculated to excite and increase morbid states has been the isolation which has necessarily obtained among our people inhabiting our islands. Maine has a seacoast of more than three hundred miles in a direct line, and with its numerous bays and indentations it presents a barrier to the ocean of more than two thousand miles. This long coast exposed to the waters of the Atlantic Ocean is dotted over by many isolated islands, all of which comprise a part of the State and are under its entire jurisdiction. Many of them are small and unincorporated and are policed by the nearest mainland incorporated town. There are, however, quite a number sufficiently large to form townships, one of which, the island of Mt. Desert, upon which is located the famous resort of Bar Harbor, contains three incorporated municipalities. With the exception of this island, which is located quite contiguous to the mainland, and a few insular possessions in Casco Bay, adjacent to the city of Portland, the rest are quite isolated, and for many years the inhabitants have been engaged largely in fishing.

Until within the past two or three decades the methods of communication have been of such a character as to subject its inhabitants to more or less recluseness, necessitating restriction in social life. Statistics show that intermarriages have occurred frequently, and as a consequence it may be shown that marital relations have resulted in neuroses of such a character that a larger per cent of insanity necessitating institutional treatment has existed than elsewhere throughout the State. This contention has been demonstrated from the fact that for a long period there was under treatment at the Maine Insane Hospital from an island town not exceeding three thousand five hundred inhabitants, an average of seven or more patients. This condition may be compared, for the purpose of showing a larger per cent of insanity in these secluded communities, with a municipality upon the main-

land, which at the same period with a population exceeding forty-five thousand was providing for only thirty patients under institutional treatment. Other statistics might be adduced tending to show that the isolation which has necessarily prevailed among the inhabitants of our islands excluding opportunities for intercourse and interchange of social relations with the inhabitants of the urban districts of the State, and lack of diversion, which is so essential to the maintenance of vigorous mental health, had a tendency to insanity and actually induced insanity out of proportion to that which obtained among the residents of the mainland. Later I will mention the agencies which during the last quarter of the century have been in operation, which in my judgment are bringing about a healthier mental state in these island homes, and the conditions which are to continue will be likely to still lessen morbid states and actual insanity.

Our statistics which have accompanied our hospital reports have not been arranged with special reference to offering data in making a comparison as to the proportion of existing insanity, between these classes mentioned, and that of the districts containing the cities and the more densely populated areas. I find, however, after a careful study of our hospital reports and other information obtained that the ratio of insanity to the sane population of the State is found to be 1.86 to every thousand of its inhabitants. Of the urban districts 1.90 per cent and the rural districts excluding that of the islands 1.75 per thousand. Sufficient statistical information is at our command to warrant the assertion that insanity in the past has been more prevalent among the inhabitants of the islands than elsewhere. It will be observed that in the inland rural districts, however, the per cent of insanity to the population is not quite so large as that which exists among the citizens inhabiting the cities and coast towns.

It must be borne in mind, however, that the products of the forest are conveyed by the water courses to the more densely populated parts of the State for manufacturing purposes and to such localities as we might regard as the urban districts. There we find, employed in these lumbering and various other manufactures, the foreign element who represent among the population a higher ratio of insanity. I am of the opinion that deducting this last class

from the estimate it would be found that among the native population insanity would be found existing at as high a ratio in the sparsely settled communities as in the more densely populated. If, however, country life and agricultural pursuits are more favorable to physical health and vigor, why then should we not observe a much smaller proportion of insanity existing among its inhabitants, than among the citizens of cities? The affirmation which I wish to make emphatic as one of the potent causes of this condition arises from the almost total withdrawal of social intercourse and the continuous monotony and solitude which necessarily obtains.

What instrumentalities are there being put in operation in attempting to ameliorate these unfavorable conditions? I will mention a few agencies which are already instituted, which if continued in existence will, it is quite apparent, result in the mental well-being of the inhabitants of these secluded localities. I refer to the traveling library, to the constantly increasing influx of summer tourists, the further extension of steam railroads and trolleys and the introduction and extension of the telephone. In 1899 the system was established of introducing the traveling library, preference being given to its introduction into such localities as did not enjoy the benefits of local libraries. One hundred libraries with fifty volumes in each composed of descriptive, historical, and fictional works are kept in circulation constantly, which are furnished from the State library free of cost. I learn from the librarian that the statistics which he has on file in this State department show conclusively that the volumes are extensively perused, and that there is unmistakable evidence of beneficial results.

The increasing numbers of tourists and summer cottagers coming annually not only for hunting and fishing, but to enjoy the bracing atmosphere of the islands, are offering social advantages and opportunities for the interchange of ideas, particularly to the inhabitants of the latter section, which must conduce to the physical and mental well-being of the native population. The extensions of the industrial appliances, in the development of our railroad system and the introduction of telephones, are forces which must necessarily be regarded as potent auxiliaries in establishing better opportunities for the inhabitants and thereby so far as their

influence extends aid in lessening conditions of introspection and subjectivity which have hitherto in a large degree existed. I am sure that these mentioned forces are operating favorably and that I can write optimistically of the results which are manifesting themselves. At all events there is statistical evidence that during the past quarter of a century insanity has decreased in the State. In 1880 the United States enumeration showed that there were living within the borders of the State 1542 insane persons; the last census gives the number as 1299. The writer has during the past year received from the officers of all of the municipalities, unincorporated towns and plantations the number of insane now cared for in these precincts, and it is found that these statistics obtained added to the number in the two hospitals correspond very closely to the figures given by the government census. It becomes us as citizens to see to it that these active instrumentalities tending to elevate the intellectual, moral and mental condition of our inhabitants in these sections where the social relations have been so stunted in the past shall continue to exist.

Man, Godlike in his nature, was created a social being. Withdraw from him opportunities for social existence and deterioration is the inevitable result. At the creation of man the science of sociology was proclaimed by the Almighty when He said, "It is not good that man should be alone."

DISCUSSION.

DR. HENRY M. HURD.—It seems very important that we should have similar studies in reference to the insanity of different States. Dr. Sanborn has given us an extremely interesting paper, as showing conditions which exist in Maine. Some of us wish he had gone into other topics in connection with the peculiarities of Maine, as, for instance, the prohibition of the liquor traffic and its effect in lessening insanity. I feel, however, it is important that we should have similar studies from other States. I wish to know, for example, why Massachusetts has more insane persons than it ought to have and why the number is constantly increasing. Can it be due to Christian Science and the various isms which afflict that State? Why, for example, in a State as small as Rhode Island, where there can be no hermit life, should there be an increase in insanity, and what are the causes of it?

It is most important to consider the question which Dr. Sanborn has brought forward so interestingly, the influence of isolation upon the mental health of the rural community. When I lived in Michigan, where we had

a large population engaged in lumbering, there were many cases of insanity in the rural districts. I used to ascribe this particular development of insanity to the fact that the lumbering regions were occupied by people who were disposed to flee from civilization. They were persons who were at odds with their surroundings, and went into lumbering because here was a form of life where it was possible to gratify the vagrant and his diseased impulses. Such men are fond of change of scene; they go about frequently from one place to another. Unquestionably mental disease developed among them, but they were ready for it before they wandered into the wilderness. The same was true in California, where they told me insanity developed among the shepherds, many of whom very rarely saw a human being. But when you investigated these cases you found that they were peculiar before they took up that form of life. They were restless, unhappy, did not get on well with their neighbors, and the development of their insanity was but the culmination of their tendencies.

I wish, as I hinted before, that Dr. Sanborn had told us whether the lessening of the amount of insanity in Maine is due to the very drastic temperance legislation which has existed in that State during the past fifty years. I hope it is so, and that Maine is reaping the result of a persistent and careful effort to regulate a traffic, which we all recognize to be a source of great degeneration and mental disease.

DR. SANBORN.—I think I found that the statistics were quite reliable from the fact that I had occasion to write to every town and plantation throughout the State during last fall. I did not think of writing this paper, but wished the information for another purpose, as the legislative bodies had passed a vote to take upon the State all of the insane of the State that are now being supported by towns. In that investigation I had replies from every town and unincorporated town and plantation in the State. Now, adding that aggregate to the number that was occupying the two State institutions, one at Augusta and one at Bangor, must give a correct estimate, and I found that it varied but eight persons from the United States census.

Unquestionably from the Civil War to 1880—twenty years subsequent—the wear and tear upon the health—the worry of mothers, fathers, sisters and brothers—and the traumatic influences undoubtedly had a tendency to increase insanity. There was no question about it, because in the institution where I have been since 1866 there was a constantly increasing influx of patients, but it is not so now.

I think there are in the two institutions about 1050 patients, and we shall require accommodations for 300 more, when I think we can accommodate all the insane in the State of Maine.

In answer to Dr. Hurd's question, I am not going to stand up here and say that there are no intoxicating liquors drunk in the State of Maine. Once in a while there is, but I will relate a story which was told me several years ago, coming from an old and very intelligent gentleman. I was

up in my native town in Cumberland county where there had been considerable agitation in reference to the prohibitory law of Maine. This man's father was a lumberman and kept a country store, and in those days they sold largely salt fish, rum and molasses. He said: "Doctor, I can recall when my father sold twenty hogsheads of New England and Medford rum out of his store every year. Now," he asserted, "there is not so much liquor sold in the county of Cumberland to-day in my judgment as there used to be sold out of that store." There is not so much drinking by any means as there used to be in Maine, and I think the prohibitory law is of some advantage in preventing insanity.

DR. A. W. HURD.—What has been the amount of the general population during this decrease of insanity; has it increased or decreased?

DR. SANBORN.—There has been an increase. Maine is not a large State, it probably has a population of 750,000, and in 1890 it had perhaps 680,000, so there is a gradual slowly increasing population.

DR. WENTWORTH.—The figures which Dr. Sanborn has given, do they include the imbeciles, idiots and feeble-minded, or are they restricted simply to the insane?

DR. SANBORN.—Not at all. There are said to be more feeble-minded people in Maine than there are insane. The legislature of Maine last winter appropriated money for the construction of a home for the feeble-minded. They have been about it for five or ten years. Now it is accomplished, and the land has been purchased. Now the ardent supporters that have made a canvas of the State claim that there are some 1600 feeble-minded in the State against, we will say, 1300 insane. This may be so.

DR. BANCROFT.—I would like to ask Dr. Mitchell, from Bangor, what he has to say upon this subject.

DR. MITCHELL.—I have not been in Maine long enough to become so thoroughly familiar with the statistics of the State as to pass any opinion upon them, with the possible exception of one observation concerning alcoholic insanity. I think Dr. Sanborn is right in saying that while prohibition does not prohibit, either prohibition or the lack of drinking instinct does materially reduce the amount of alcoholic insanity seen in our insane hospitals. This form of insanity is considerably less than 5 per cent among the men admitted to the Insane Hospital at Bangor. At Danvers Insane Hospital it forms from 18-20 per cent of the male cases.

I think Dr. Sanborn's paper shows conclusively that the rural surroundings of Maine do not materially increase insanity. Whether or not a large proportion of these feeble-minded, idiotic members of society come from islands where consanguinity prevails, I am unable to state, but should assume that to be a very probable explanation.

I recently looked over the statistics of Massachusetts, as furnished by the State Board of Insanity. These figures have been carefully kept for a period of 30 years. During that time 43,000 patients of known nativity have been admitted to the Massachusetts insane hospitals. Of this number 63 per cent were of foreign parentage.

Inference is fairly drawn that it is in the tenement-house districts, where unhygienic conditions, excessive drinking and irregular habits are apt to prevail, that a very large proportion of our total insanity is developed, rather than from the better conditions of rural life.

MEMORIAL NOTICES.

DR. RANDOLPH BARKSDALE.

By WILLIAM FRANCIS DREWRY, M. D., PETERSBURG, VA.

After a long period of impaired physical health, Dr. Randolph Barksdale died at his home in Petersburg, Virginia, October 18, 1907, at the age of seventy-six, leaving a spotless name as a heritage to posterity.

He descended from one of Virginia's most prominent, cultured and influential families. His ancestry was of the purest and best English stock. His academic education was acquired at local schools in his native county, in the beautiful Piedmont section, and at the University of Virginia. After graduating in medicine at the University, in 1849, he entered the medical department of the University of Pennsylvania and took his degree there two years later. He was then appointed on the resident staff of old Blockley Hospital. At the expiration of his service in this far-famed institution of that day, he went abroad and completed his medical education in Paris.

In 1856 he located in Richmond, Virginia, where he practiced his profession with success, till the beginning of hostilities between the States.

Entering the provisional army of the Confederate States as a surgeon, he began actual service at Manassas. In 1862 he was assigned as Medical Inspector to General Longstreet's corps, which position he filled, in a satisfactory manner, till the surrender at Appomattox.

In 1873 he was appointed Medical Superintendent of the Central State Hospital for the colored insane of Virginia. This position he held continuously for twenty-three years, save two years when the public institutions of the State were made political prey under the Mahone régime. In 1896 he resigned on account of ill health, and as a mark of appreciation for his long and efficient service in developing the institution, the board of directors con-

ferred upon him the unusual but merited honor of emeritus superintendent.

When he retired from active service he carried with him the respect and regard of the public, and the gratitude and high esteem of those who had been associated with him in the work of the hospital. I count myself fortunate indeed to have had the advantage of ten years' training under, and association with, a man of such exalted character, such keen sense of justice and tender sympathy, and withal, such superior ability.

Though he wrote little for the medical press, and his retiring disposition was a barrier to his prominence on the floor of medical societies, he was justly regarded as one of the ablest alienists and hospital superintendents of his State and of the South. His annual reports, written in his peculiar epigrammatic style, were models of clearness and conciseness—too much so, for the reason that he did not elaborate sufficiently the advanced ideas he had regarding the care and treatment of the insane, and the construction and management of hospitals and the splendid work he was doing in his chosen field. He was a member of the Medical Society of Virginia and the American Medico-Psychological Association, and took deep interest in them.

He was twice married. His first wife was Miss Macfarland of Richmond and his second Miss Patteson of Petersburg. She and a son and two daughters by the the first marriage live to bless his memory.

Dr. Barksdale's personality was distinctive. He was a typical example of the old school of Southern gentry, whose characteristics we of later generations never tire of extolling. Of lofty ideals and dignified bearing, reserved and retiring, unostentatious and unobtrusive, yet firm in conviction, wise in counsel and bold in action, loyal in friendship, kind and considerate, courteous and gentle always, he was respected and beloved by a host of admiring friends.

Both sexes' virtues in him combined:
He had the fierceness of the manly mind,
And all the meekness, too, of womankind,
He never knew what envy was, nor hate,
His soul was filled with worth and honesty,
And with another thing besides, quite out of date,
Call'd modesty.

· DR. JOSEPH GOODWIN ROGERS.

By SAMUEL EDWIN SMITH, M. D.

Dr. Joseph Goodwin Rogers, Medical Superintendent of the Northern Indiana Hospital for the Insane, at Longcliff, Logansport, died April 11, 1908, of nephritic disease.

He was born at Madison, Indiana, November 23, 1841, and was the son of Dr. Joseph H. D. Rogers and Abby Goodwin Lane Rogers.

His father, a kinsman of General George Rogers Clarke and Colonel William Clarke, was a physician and surgeon of extensive practice, skill and reputation throughout a large section of southern Indiana and northern Kentucky—a man of immense force of character, a giant in stature and a leader of men—he was the type of pioneer necessary to the rapid development of the Northwest Territory and the introduction into it of the learned profession of medicine and surgery. Although many years have passed since this pioneer practitioner's demise, his name and influence still live. From him the subject of this sketch inherited a sturdy, forceful and strong character.

His mother was a gentlewoman of refined and cultivated taste for the good and beautiful in literature, art and nature, kind, affectionate and wise; she transmitted and developed in her son a mind of high ideals and artistic temperament.

His earliest education was obtained in the public schools of Madison, but his school years were few, because at the age of eight a slight and apparently simple injury resulted in a disease of the spine which rendered him an invalid and confined him to his bed for eight long years. His education, therefore, was obtained during this period of suffering and was directed by a devoted and loving mother, who proved a gifted and efficient instructor, and thanks to her his education was thorough and complete, and covered a wider range of subjects than even the public schools of those days afforded. Here he became an omnivorous reader of good books and being blessed with a retentive memory and with an open mind free, by reason of his physical helplessness, from interest in the pastimes and diversions of youth, he gathered and stored a vast fund of general knowledge of literature, science and

art, which in later years caused his friends oftentimes to marvel at the breadth of his learning. Even with his most intimate friends he rarely referred to this period of his life, but on one or two occasions in conversation with the writer he stated that it was not unusual for him then, during periods of several weeks, to read a volume a day. While his physical helplessness robbed him of the opportunities and pleasures of the young men of his station, he proved the sterling mettle of his youthful character by turning his invalidism to self-profit by the cultivation of a natively strong and clear mind.

At the age of eighteen he began the study of medicine under the direction of his father; in 1863 he attended a course of lectures at the Cincinnati College of Medicine; and on March 3, 1864, took his degree in medicine at Bellevue Hospital Medical College, New York. After returning to Madison he served as surgeon in the military hospital located there until the close of the Civil War, when he went abroad and devoted two years to travel and study in the clinics of Paris and other medical centers. He then returned to Madison and entered into the practice of medicine with his father, meeting with the highest degree of success.

In 1879, he was persuaded by Dr. Theophilus Parvin and other friends to accept the superintendency of the Indiana Hospital for the Insane at Indianapolis. He was induced to give up his lucrative practice and assume the responsibilities of this important position only after much persuasion and argumentation as a public duty, and for the next four years he devoted his best energies to the reorganization and development of that hospital. His administration was on a high plane, full of accomplishment, and the first in the history of the State to break away from the direful influences of political and partisan interference. In fact his administration was too far in advance of public opinion and he retired with honor, after an incumbency of four years, rather than sacrifice his high ideals to right and duty, and become a tool in the hands of a group of self-serving patriots.

His special knowledge of and executive ability in hospital affairs, however, had been proved and he was immediately (in the summer of 1883) selected by Governor Porter and his newly appointed commission for the position of medical engineer of the three new hospitals for the insane, authorized by the legislature

of 1883. He was peculiarly well fitted for this new field of labor, and entered into it with a degree of enthusiasm and zealous energy which brought forth after five years of hard work the Northern Hospital at Longcliff, Logansport, the Eastern Hospital at East-haven, Richmond, and the Southern Hospital at Woodmere, Evansville—three modern hospitals abreast with the most advanced ideas of that time in hospital construction. They are exponents of the three distinct hospital types—the pavilion plan, the cottage plan, and the radiate plan, and stand to-day as splendid monuments to a great man. Having directed this work to completion, the commission legally charged with the trust fittingly tendered to Dr. Rogers, as an appreciation of his high achievement, the superintendency of his choice of the three hospitals. Although the radiate plan as worked out in the Southern Hospital embodied his own ideals and appealed strongly to him, he selected, for reasons of climate and personal association, since he had resided with his family in Logansport during the period of construction, the Northern Hospital at Longcliff, and in May, 1888, he became the Medical Superintendent of that institution, where he remained until the hour of his death.

Under his efficient and skilled direction, the Northern Hospital has in points of physical economy, humane methods, and medical supervision reached the highest degree of development. It rarely falls to the lot of one man to plan a State hospital, then build it and afterwards manage and develop it for a period of twenty consecutive years, but such was Dr. Rogers' distinction. And through it all the march of progress went steadily on year by year, and to the very day of his death he strove for better things. He never rested from his labors and was devoted to his work body and soul, and being endowed with executive ability of high degree, he directed and secured from those about him the same application and methodical effort which brought the best results. His hospital bears the mark of his genius as a builder and director in every part and department and his influence over it and in it must endure for all time.

For a total of thirty years he was in the hospital service of the State of Indiana, and as one serving side by side with him for two-thirds of that long period, the writer finds much pleasure in testifying to the exceptional value of his services for the public

good in the cause of humanity. This State is indebted to no one more than Dr. Rogers for the improved methods in its care of its insane, and for his splendid example of independent administration, which encouraged and made possible the enactment of Indiana's non-partisan laws, which are a source of pride to every citizen of the State.

His quiet dignity, innate refinement, broad scholarship, mental poise and genial manner were the characteristics which marked him a man among men and commanded for him the highest respect of all who came in touch with him.

Through all his varied duties and lines of endeavor, he was essentially a medical man, whose professional attainments were of the highest order, and he ever kept abreast with the rapid strides in general medicine as well as the progress in psychiatry, his special field.

His writings include a long list of reports, state papers and numerous monographs on professional and other topics. All were carefully prepared, thoroughly treated, and couched in classic English, of which he was a master.

On March 9, 1885, Hanover College conferred upon him the honorary degree of Doctor of Philosophy, and in 1900 he was elected president of this association (The American Medico-Psychological Association) and presided over its deliberations at Richmond, Virginia, during its meeting of the next year. During the period of his superintendency of the Indiana Hospital for the Insane at Indianapolis he filled the chair of materia medica and therapeutics at the Indiana Medical College.

On June 20, 1872, he married Margaret Watson, of Bedford, Pennsylvania, who with three daughters and two sons survive him.

His devotion to his family was a beautiful and conspicuous trait of his character. His home life was perfect and as husband and parent he was ideal. Positive and urgent duty, alone, denied him the joy of the peaceful evening hours with his accomplished wife and talented sons and daughters about his hearthstone, where he ever found the greatest happiness of his life.

In Dr. Rogers' death the State has lost a great and noble citizen, the medical profession a distinguished specialist and the association an honored and valued member.

FRANK HOSMER MAGNESS.

By JOHN RUDOLPH KNAPP, WARD'S ISLAND, N. Y.

Dr. Frank Hosmer Magness was born in New York City in 1863. He received his general education in the schools of his native city and later studied medicine, graduating from Bellevue Hospital Medical College in 1895.

In October of the same year, he became connected with the New York City Asylum for the Insane on Ward's Island, and continued in the same work after the care of the insane was transferred to the State.

Dr. Magness was retiring in his disposition, unostentatious, kind and unassuming; always extremely conscientious in the discharge of his duty. In the numerous details and management of his service of working patients, he was recognized by his associates as an authority, his counsel in matters pertaining thereto being frequently sought and always generously given. He managed his patients with rare tact and ability and the esteem in which he was held, by both patients and employees, was manifested by their attachment to him and by their great sorrow at his untimely end.

Although he had been far from well for some weeks, he refused to relinquish his work and continued on duty until the day of his death, which occurred suddenly on June 14, 1907.

He was a member in good standing of the State and County Medical Societies, and of the American Medico-Psychological Association.

His associates feel that they have lost a true friend and worthy fellow-member, and to his sister to whom he was greatly attached, and upon whom the principal bereavement falls, they extend their heartfelt sympathy.

ROBERT J. PRESTON, M. D.

By WILLIAM FRANCIS DREWRY, M. D., PETERSBURG, VA.

It is a duty mingled with feelings of sadness and pleasure to sketch the life of one's friend who has gone to his reward in that better land beyond.

On four occasions, within a few years, have I felt called upon to present to their confrères, memorials of men who have rendered valuable service in the care and treatment of the insane in our State. Three of these died while still engaged in the active work; the other, some years subsequent to his retirement, on account of ill health.

Preston, Barksdale, Moncure, Blackford—a galaxy of noble Virginia alienists—worthy of a better historian than I, to tell of their deeds or to write their epitaphs.

After an exemplary private life and a public one replete with usefulness to his State, Dr. Robert J. Preston died at the age of sixty-four, August 20, 1906, at Lewiston, New York, while on his way to Toronto to attend a meeting of the British Medical Association, as a delegate from Virginia. His health had been failing.

From his heart the song of the poet went up to his Maker:

Till at last, weary, to touch the goal,
And know the journey blest,
Ready, though staunch of heart and strong of soul,
Aye, ready—for my rest!

His early life was spent on his father's farm in southwest Virginia, where his ancestors settled in the latter part of the eighteenth century. In the social and public affairs of the State the family has ever been prominent and influential. Trained under strict Scotch-Irish Presbyterian influences, educated in the "old field" schools and the neighborhood academy, and at Emory and Henry College, he had a firm foundation upon which to build his future life-history.

On the secession of his State, he joined a local company as lieutenant, and served as a gallant soldier till the close of the war. At different times during that memorable struggle he fought under Taliaferro, Garnett, "Stonewall" Jackson, Early and Rosser. In 1864 he was promoted to the captaincy of a cavalry company.

Returning home after the war was over, without means, he began life anew. He taught school for a year or so, and then entered the medical department of the University of Virginia, where, in 1867, he graduated in medicine. Afterwards he took a post-graduate course in New York in order to better qualify himself for the practice of his profession.

Upon the opening of the Southwestern Hospital at Marion, Virginia, in 1887, he was appointed assistant physician at that institution. In 1889, on the death of Dr. Harvey Black, he was promoted to the superintendency, which position he held continuously till his death.

The following resolution, adopted by the Board of Directors, shows in what esteem he was held:

"Resolved, That in the death of Dr. Preston the hospital service has lost one of its most faithful servants, one who has for nineteen years—seventeen of these as superintendent—been most efficient, showing strict integrity, a high sense of honor and loyalty to the work, and by his inflexible fidelity to his trust, proved himself worthy."

He contributed several valuable papers to medical societies and journals. He was a member of the State Medical Examining Board from 1885 to 1890, was, for a term, president of the Medical Society of Virginia, and in 1902 had the distinguished honor of being president of the American Medico-Psychological Association.

He was married in 1875 to Miss Sheffey, who died leaving three children, and in 1900 to Mrs. Stuart-Gravely, of which marriage one child was born. His second wife and all his children survive him.

What a distinguished scholar and Southern gentleman said of another, may be truly said of Dr. Preston:

"In social life he represented all that was best and finest in the civilization of what is to-day called 'the old South'—that

peculiar civilization, which in its gracious manners, its unfailing courtesies to gentle and simple alike, its reverence for women, its high and generous honor, its fine chivalric instincts—held itself jealously aloof from the more complex and material ‘civilization’ of the outside world, proudly conscious that it was ‘of its own kind.’ ”

DR. T. O. POWELL.

By DR. J. T. SEARCY.

Dr. T. O. Powell died at Tate Springs, Ga., on the 18th day of last August. He was president of this Association during its session, in Baltimore, in 1897.

Dr. Powell was born in Brunswick county, Virginia, in 1837, and was in his seventieth year at the time of his death. His father moved to Georgia when he was a child. He received his academic and his professional education all in that State—his medical diploma from the college in Augusta, in 1859. The Civil War beginning soon after, he enlisted in the Confederate Army and was elected assistant surgeon in the 49th Georgia Regiment. He accepted the appointment of Assistant Physician in the State Institution for the Insane at Milledgeville in 1862. He held that position for seventeen years under the superintendency of Dr. Green, who died in 1879. Dr. Powell was promptly elected his successor. For twenty-eight years he remained superintendent, until his death. For forty-five years he was a medical officer in the same State institution. I do not know an instance like it, notable for continuous length of such service. It speaks well for Georgia, where, for that length of time, politics were not allowed to interfere with the official management of its insane. Dr. Powell saw his hospital grow from a few patients to one of the largest in this country, numbering nearly three thousand at the time of his death. He left it in most excellent shape.

Dr. Powell and Miss Frances Birdsong, of Hancock county, Ga., were married in 1860. Of their two daughters, Mrs. Conn and Mrs. West, the latter is still living and resides with her mother at their home in Milledgeville. Mrs. Powell generally accompanied her husband to the sessions of this Association, and was always an interesting and an attractive presence—an excellent type of a devoted wife, a true lady. Their constant attendance will be greatly missed.

Dr. Powell was a member of the Georgia Medical Association, of which he was president in 1887; he was also a member of the

American Medical Association. He was an officer in the Methodist Church, a Sir Knight Templar, and a Mason.

His presidential address at Baltimore, in 1897, was an exceptionally valuable paper, filled principally with the history of State-care of the insane in the Southern States. It showed great research and great personal acquaintance with the early history of the various institutions. No man could have been found better equipped for writing such history. This paper will remain valuable through all time as a reference sheet in the history of Psychiatry in this country.

The obsequies attending the funeral of Dr. Powell were held from the Georgia Sanatorium on August 23, 1907. His body was buried in the cemetery at Milledgeville. State officials, members of his profession, representatives from his church, and the various organizations to which he belonged, all delivered eulogies to his memory. They were all filled with the highest encomiums of regard and appreciation of his noble, gentlemanly, Christian characteristics.

To quote from the remarks of Judge Lawson: "We venture to say that he carried with him into the invisible world the unstinted love of the people among whom he lived and who had known him so long. They loved him for the modesty of his demeanor, the purity of his character, the loftiness of his purpose, the nobility of his nature, the sincerity of his friendship, his myriad acts of kindness and generosity among men, for his social graces and domestic virtues, and for his fidelity to the great charity which his State had committed to his hands."

As a great admirer of Dr. Powell and a close personal friend for a long number of years, I feel unequal to the task of doing justice to his memory. There is a great vacancy at this meeting without him. That such men as Powell and Murphy and Preston and Barksdale and Rogers, three ex-presidents, should have dropped out of our ranks and from the list of my immediate friends so recently, leaves a void that is palpable at every turn.

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